AMERICAN BEE JOURNAL

AUGUST 1922

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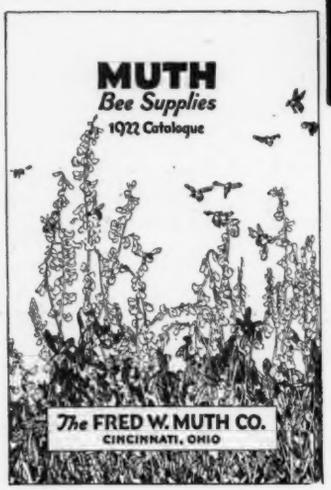

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FIRE POT, 4x10

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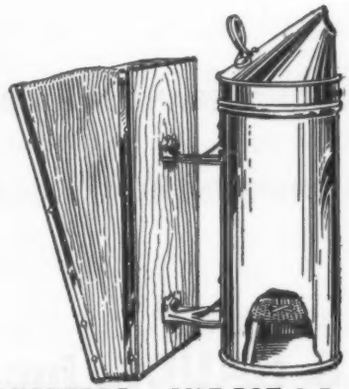

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With metal telescope cover, inner cover, reversible bottom Hoffman frames, nails, rabbets.

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Medium, 5 lbs. 68c lb.; 50 lbs. 65c lb. Thin super, 5 lbs. 75c lb.; 50 lbs. 72c lb.

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Standard Langstroth ---------- $5.00 box of 10
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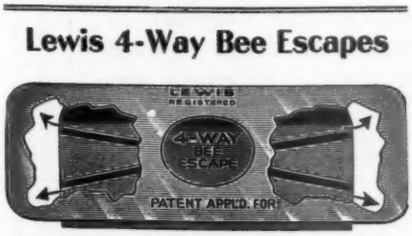
CONTENTS OF THIS NUMBER

Dietetics and Health ----------349
Death from Bee Stings—W. F. Cooke ----------349
Remedy for Stings—M. P. Woodworth ----------350
Does Beekeeping Pay? ---------350
Races of Bees of Central Europe —Alois Alfonsus ----------353
Apis Americana—A. F. Bonney--355
Editorials ----------356-7
Regional Differences in California —M. C. Richter ----------358
Finding the Queen—Allen Latham ----------361
Valuation of a Honey Producing Business—Elmer T. Beach ---362
Beehive Covers—C. E. Fowler---364
Setting the Public Right—E. S. Miles ----------365
Bees in Quebec and Roman Law—Frank D. Genest ----------366
Practical Watering Device -----367
An Ancient Writer's Instruction-367
Death of Doctor Bonney -------368
Alexander, the Wizard — John Protheroe ----------368
Fall Pasture for Bees — L. H. Cobb ----------369
New League Officers ----------369
A Pointer from Michigan ------369
Philip H. Elwood—Lewis J. Elwood ----------370
Huber Letters ----------370
Some Bee Stories—Hy. W. Sanders ----------371
Letter from Palestine—Ph. J. Baldensperger ----------372
Beeyard Notes—Chas. Reynders-372
Fastening Winter-case Corners—Maynard Knapp ----------373
Editor's Answers----------373-4-5
Lewis Treatment for European Foulbrood ----------375
Summer Meetings ----------376
Beekeeping in Restored Belgium-376
Temper of Superseding Bees—Frank C. Pellett ----------377
Honey as a Remedy—Dr. Brunnich ----------377
One Phase of Clustering—George Gilbert ----------378
Hubam or Biennial Sweet Clover —J. B. Bradshaw ----------378
Rights of a Honey Peddler------378
Cantaloupes in Imperial Valley--379
Repellant for Spray—W. A. Johnson ----------379
Acarine Disease in Switzerland--379
Pollen Gathering ----------379
Summer Meetings ----------380

Lewis 4-Way Bee Escapes



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High Quality Three-Band Italian Queens by Return Mail

Untested Queens, 1, $1.00; 6, $5.50; 12, $10.00; 25, $20.00.
Select untested, 1, $1.15; 6, $6.20; 12, $11.40; 25, $22.25.
Select tested, $1.75 each.

Safe delivery and fullest satisfaction guaranteed.

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Mt. Washington, (Cincinnati) Ohio

3 BANDED ITALIAN QUEENS

Dr. Miller stock crossed with my own, for fall requeening, at a bargain price, in 100 lots. Here is one testimonial: "I never in my life had such good all-around bees as the queens from Curd Walker. Three-frame nuclei, May 15, with one of his queens, yielded 100 lbs. surplus; not one of them, but 6 in a row. I had queens from California, Virginia, Ohio, Indiana and Alabama, but Walker's beat them all by 50 per cent."—J. Harmeling, Vashon, Wash.

I can give you the names of men who are in the front ranks of beekeeping who are now using my queens. One queen, $1; 6, $5.50; 12 for $10. Health certificate; pure mating and safe arrival guaranteed.

CURD WALKER, Scotts Sta. Ala.

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We have some interesting prices to offer on honey containers. Send us a list of your requirements and let us quote you our prices.
2½-lb. cans in re-shipping cases of 24 and crates of 100 and 500.
5-lb. pails in re-shipping cases of 12 and crates of 100 and 200.
10-lb. pails in re-shipping cases of 6 and crates of 100.
1-gallon square or oblong cans with 1¾-inch screw cap in boxes of 6.
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60-lb. square cans with 1¾-inch screw cap in cases of 2 cans.
16-oz. round glass jars in reshipping cases of 2 dozen.
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Shipping cases for comb honey for any style sections in the 24-lb. or 12-lb. size.
Send for our catalog showing full line of Bee Supplies.

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is the mother of Thrift. Realizing the honey producer's need of a thrifty bee has caused us to breed into FOREHAND'S THREE BANDS the qualities that make them *the thrifty kind*; the qualities that have brought them up to a standard *surpassed by none, but superior to many.*

For 30 years our queens have been wintering thousands of colonies of bees for the most successful producers. Our success is the result of the success of our customers. Requeen now with FOREHAND'S THREE BANDS and you will not be disappointed in your wintering or your 1923 honey crop.

We guarantee pure mating and satisfaction the world over. Safe arrival is guaranteed in the United States and Canada.

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Write for booklet. It's free.

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MR. H. L. JENKINS, HAMBURG, IOWA

Sent us his order for 100 cases of 2-5 gallon cans,
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Have you got our prices, to see what you can save? Write today. Or, send your order along, for we will price it right and send it out at once.

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COUNCIL BLUFFS, IOWA

ARE WE SAVING YOU MONEY?

JUST OFF THE PRESS

A NEW EDITION

LANGSTROTH ON THE HONEYBEE

¶ This book regarded by many as the most important contribution to the literature of beekeeping has again been revised and brought up-to-date by C. P. Dadant.

¶ The style of the book has been entirely changed. The page is larger, a frontispiece in color is included and many new illustrations have been added.

¶ This book containing the best from the lifework of three widely known apiarists—Langstroth, Chas. Dadant and C. P. Dadant should be in the library of every up-to-date beekeeper.

¶ 448 large pages, durable cloth binding.

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AMERICAN BEE JOURNAL, Hamilton, Illinois

DIETETICS AND HEALTH

Glucose as a Substitute for Honey

From March, 1922, issue of "Dental Digest"

It is very difficult to change old customs and habits of the human race. If there is one thing more than another that a child learns very early in life it is the pleasure experienced in eating candy and sweets of all kinds, and it is a habit never forgotten or entirely given up. Of course, sugar is a necessary element for the proper growth and development of children, and for which they rightly crave, but it must be natural, unadulterated sugar in order to be of any benefit.

While we know that the New York Globe has a wide circulation, and the writer of the articles quoted (Mr. McCann) is an authority on food and dietetics generally, we are certain that the "Dental Digest" will bring this valuable information into many distant homes, where the parents of children and the children themselves will benefit largely by the warning contained therein.

Glucose is not honey. As fas as the average parent of the average child is concerned, this dreadfully neglected truth is without significance. Why not label glucose "honey," even though no one ever heard of over-indulgence in honey among a people fairly stormed by glucose excesses?

Glucose is a filler. It is also the symbol of denatured carbohydrate foods. Eighty per cent of the glucose manufactured from cornstarch is absorbed by bakers, confectioners, manufacturers of compound jams and jellies, near-beers, and pie fillers.

In all these types of chemically erupted foods the tissue salts of cane and corn are ignored, as if they had no existence. The principal mineral salts possessed by pie, cake, pudding or candy are the salts introduced in the form of alum via the baking powder route, sulphites via the bleaching route, and salts of tin from the stuff known to the trade as "canned stock" or "base."

Save the Child

The disturbing fact in connection with these demineralized carbohydrate foods is the accumulation of evidence supporting the belief that the abuse of refined sugars and starches, so common in America's diet, is the chief cause of diabetes and may be held responsible for the rapid increase of this disease. Pure honey is not a demineralized sweet. On the contrary, it contains all the life-sustaining properties essential to the bee.

No less an authority than Theodore C. Janeway, of the College of Physicians and Surgeons, Columbia University, declares: "In diabetes the tissues are in a state of partial or complete sugar starvation, though they may be bathed in lymph rich in glucose. The glucose circulating in the blood and not utilized by the muscles and cells for food accumulates until in excess of the normal upper limit of one part in one thousand.

"This excess of glucose in the blood is called hyperglycemia. With long-tanding hyperglycemia the kidneys lose their power to throw off the excess of glucose and the degree of hyperglycemia tends to rise progressively. It is because the appetite is frequently gratified by carbohydrate foods (sugars and starches) that hyperglycemia is increased with no gain to the body in energy.

"Inasmuch as the diabetic has lost his toleration for sugars and starches, he must be safeguarded from all influences known to diminish his tolerance. Among such influences clinical experience teaches us plainly that hyperglycemia plays one of the chief roles.

"Failure to institute proper dietetic treatment or self-indulgence on the part of the patient so frequently leads to the development of severe diabetes in a previously mild case, that the weakened power for using sugars and starches is diminished by over-indulgence in sugars and starches."

There is a tremendous body of evidence to prove that it is this indulgence in crazy sweets which sets up the morbid conditions now described as diabetes in a half million cases in the United States.

I suppose I might go on till the crack of doom pushing facts like these into the consciousness of the crowd, and there would still remain countless armies of glucose absorbers who wouldn't trouble themselves to walk across the street to save their precious hides by substituting pure honey for a chemical syrup. This is not irony!

DEATH FROM BEE STINGS

Some Explanation of Nerve Centers, Etc.

By W. F. Cooke

On page 70, February issue (1922), in the department "The Editor's Answers," under the caption "Alfalfa Windbreaks," the author, who signs himself California, gives an account of two instances of death following shortly injuries of the heel, and he puts forward the theory that in each instance an injury had been done a nerve, the heel, he says, being an important nerve center.

In all vertebrated animals the nerve centers are either in the brain or the spinal cord. The nerves are only motor or sensory paths from the center to the muscles in the motor paths, from the periphery or sensitive tissues to the centers in the case of the sensory paths.

The motor and the sensory roots are always separate at their points of origin in the nerve centers, but they generally unite a short distance from their place of origin, so that a nerve in its further course contains both motor and sensory fibres bound up in a tendinous sheath.

The rapidity with which an impulse is transmitted to the muscles, or a sensation to the centers, is highly suggestive of electricity. I hasten to add that I do not wish to be understood to suggest that a nervous impulse is in any sense an electrical condition; I only wish to call attention to the extreme rapidity of impulses and sensations.

Injury to a nerve manifests itself in paralysis of the parts supplied by the injured nerve.

The experimental physiologist is every day subjecting the nerves of living animals to every conceivable mechanical and chemical irritant, and unless he disturbed some nerve like the tenth cranial (pneumogastric) distributed to organs like the heart and lungs, he would not expect death as a result.

Now in regard to the unfortunate little girl who was struck by the fang of the copperhead, the fang probably entered one of the plantar arteries or veins of the foot, thereby injecting the poison directly into the general circulation; in that way the venom would be circulating in the finer capillaries of the brain in much less than ten minutes, with death as a result of disturbances of heart action; in short, paralysis involving all life processes.

Suppose the fang did strike a nerve, there would be pain and swelling at the point of injury with more or less tingling along the point of distribution of injured fibres, finally followed by paralysis below the point of injury. Surely not death unless the patient's condition was such that he could not withstand the shock which in greater or less degree accompanies every sensation of pain.

Now, in regard to the story told by the worthy veteran of 61, about the man who was shot through the lungs being well and hearty 15 years after while another man shot in the heel was dead in thirty minutes:

A very good story for an old soldier to tell when recalling his experiences, but a very inadequate foundation upon which to base a theory of tarsal nerve centers.

We very justly regard gunshot wounds of the lungs as of grave import; the immediate danger is hemorrhage; if the large vessels at the root of the lungs should be involved the patient would strangle in his own blood in a few moments, while if the smaller vessels at the borders of the lungs were only involved hemorrhage might cease, and if subsequent infection did not occur, there is no reason why the patient should not recover, and such recoveries are frequently recorded in medical literature; while on the other hand, death from injuries to the heel are notable for their absence in medical records.

Missouri.

More Deaths

Two old beekeepers of Illinois died in the early days of July, W. H. Hyde, of New Canton, and O. A. Pittam, of Burnside. Both were actively engaged in beekeeping for many years.

MONEY AND SATISFACTION FOR YOU

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives; cedar or pine. Write for catalog.

A. E. Burdick Co., Sunnyside, Wash.

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SAVES HONEY TIME MONEY

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Lowistown, Illinois, U. S. A.

(Please mention Am. Bee Journal when writing)

QUEENS OF

Moore's Strain

OF ITALIANS PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested Queens, $1.25 each; 6, $6.50; 12, $12. Select Untested Queens, $1.50 each; 6, $8; 12, $15. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free.

J. P. MOORE, Queen Breeder
Route 1, Morgan, Kentucky.

75c each

One or more SELECT Untested
THREE-BAND ITALIAN QUEENS
No poor-appearing queens will be sent.
A satisfactory sale guaranteed.
No disease.

D. W. HOWELL, Shellman, Ga.

SANCO QUALITY

BEES AND QUEENS

Threebanded, Leather Colored. Also Goldens. They are bred from Imported Stock and crossed with Root's Breeders.

QUEENS

1 Untested	$1.00 each
12 or more	.90 each
Tested Queens	2.00 each
12 or more	1.75 each

NUCLEI

2-frame Nuclei with Queen	$3.95 each
3-frame Nuclei with Queen	4.95 each

Orders filled promptly. Satisfaction and safe arrival guaranteed. There is a health certificate with every package.

SANCO BEE COMPANY
East Main St., Fredericksburg, Ohio.
Bee Supply Catalog upon request.

MACK'S QUEENS

Are the equal of any on the market, regardless of kind or price. Perhaps that's putting it rather strong, but they stand ready for comparison at any time. Every queen fully guaranteed.

Untested, $1; 12, $11.40; 25, $22.50
Select untested, $1.25; 12, $13.50; 25, $25.00.

Select tested, $2.25; 12, $24.00.

HERMAN McCONNELL
Robinson, Illinois.

A NEW BEE BOOK

"Dadant's System of Beekeeping"

Send for a copy today.

Price $1.00.

TENNESSEE-BRED QUEENS

Fifty Years' Experience in Queen-Rearing
Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	$2 00	$ 8 50	$15 00	$1 50	$ 7 50	$13 50	$1 25	$ 6 50	$11 50
Select Untested	2 25	9 50	18 00	1 75	9 00	16 00	1 50	7 50	13 50
Tested	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	27 00

Select tested, for breeding, $7.50.

The very best queen, tested for breeding, $15.

Capacity of yard, 6,000. I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

"Five colonies of your stock produced 2,660 finished sections—the best one 616 finished sections." JOHN M. BIXLER, Corning, Iowa, February 1, 1921.

REMEDY FOR STINGS

By M. P. Woodworth

As to the best remedy for bee stings, let me say that from my own experience only one practice has proven of any real merit. I have tried iodine, salt and water, boric acid, ammonia, mentholatum, cold water at the pump, but generally matters got worse. Though stings do not cause swelling as formerly, still they are painful, so here is what I do: As soon as the sting is received I blow hot smoke on the wound. Of course I always remove the sting by a quick movement of the hand against the clothing or by a sharp scrape with the hive tool. The blowing of the smoke seems to relieve in itself, and also serves to destroy the poison odor which would excite more bees to sting. Generally after using the smoke, if moist earth is handy I grab up a small amount and place it over the wound, and get immediate relief. It's sometimes hard to find the wet earth, but there is one place, and that is beneath the alighting board. I might add that for burns from the smoker, wet earth will work wonders. I would not advise its use where the skin is broken, as contamination might follow.

Wisconsin.

DOES BEEKEEPING PAY?

Here are four questions, asked by a correspondent. We solicit answers from our readers.

We might remark that it will be all right for a man who makes bees successful with fruit and poultry to state how he succeeds. Fruit, especially, is an adjunct of beekeeping, for bees thrive best where fruit is produced, and the same is true of fruit where bees are kept.

In our own practice, the only reason why we became supply dealers was that we kept supplies on hand for our own use and friends came to us for them. This suggested keeping them for sale. Similarly, in making comb foundation for our use, we were asked by others to supply them, and thus we got to making it on a large scale, after we had bought a machine only for our own wax working. This- reminds me that a bee keeper, at a convention, in 1880, asked three foundation manufacturers whether it paid to make wax into foundation. Two of them replied that it did not pay. The third one was myself. The other two quit making foundation, even for their own use, shortly afterwards. Evidently some men can make a business pay, while others cannot.

The questions follow. Try your hand at answering them:

1. Does beekeeping pay?

2. Does anybody make a good living out of bee culture—except the supply dealer?

3. How many pounds of extracted honey per colony per year must be secured to pay expenses of running the colony?

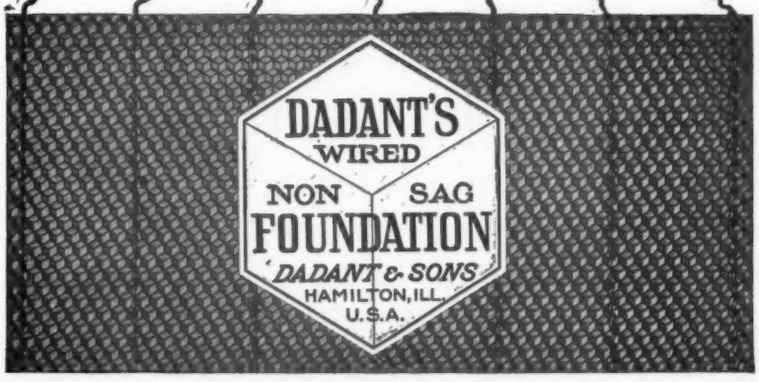
4. How many colonies must a person have to support him?

DADANT'S WIRED FOUNDATION IS SAG-PROOF

Reinforced with Radiating Shoulders of Strength

Everlasting Strength Instant Assembly

The Finished Comb a Delight to the Eye



Patented

HERE IS THE EVIDENCE:

Kentucky	Iowa	Washington	Texas
I have tried Wired Foundation this year under exactly the same conditions and surroundings, as far as I could tell, with foundation that was wired horizontally. Every frame of the old style foundation sagged badly and the Wired Foundation made perfect combs. I call it the greatest improvement modern beekeeping has had for many years.—P. C. W.	I believe this foundation will prove a labor saver. It can be inserted in a short time. Wiring frames is sure a tedious job at best. There is no sag in the foundation. I threw them quite hard in extracting and for new combs they stood up fine.—B. A. B.	There has been absolutely no sagging or stretching of cells. There is no question in my mind that this method of wiring foundation is a great step in advance of the old horizontal method, and these vertically wired combs are the best combs I have in my yard.—A. E. B.	We are glad to say that we have thus far gotten 93 per cent absolutely perfect combs. We have seen no evidence of vertical sagging.—E. G. L.

DADANT'S WIRED FOUNDATION may be used in new-style split bottom-bar frames or in the old-style one-piece bottom-bar frames with equal satisfaction. It is also adaptable to any size and style of brood or extracting frame.

COSTS NO MORE. Since Dadant's Wired Foundation cuts the cost of labor and of wiring, its extra price of three cents per pound above the catalog prices of old style foundation is thus more than returned to the beekeeper.

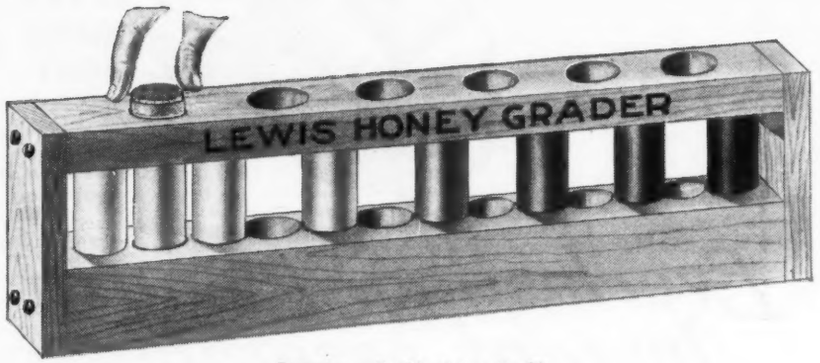
BEESWAX. We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Ia., or drop us a card and we will quote f. o. b. here or f. o. b. your own station, as you desire.

Wired Foundation is sold by all distributors of Lewis "Beeware" and Dadant's Foundation. Send them your orders.

DADANT & SONS, HAMILTON, ILLINOIS

LEWIS HONEY GRADER

PATENT PENDING



Compare a liquid with a liquid.

Ben L. Salamon, Advisory Engineer, Pittsburgh Plate Glass Company, says: "The difference in appearance between a round object and a flat one produces a disturbing effect, which makes color comparison difficult. This is further accentuated by the refraction of transmitted light, which causes the two pieces being compared to look wholly dissimilar. There is no question by what method the results can be more accurately and more easily judged."

The liquid used in the color standards of the Lewis Honey Grader is non-freezing and fast color. It is enclosed in air-tight bottles of like shape, size and colorless glass as used in the bottles of color standard, so like is compared with like—very important. The arrangement allows a sample of honey to be placed between each pair of color standards. Dr. Henry Schuette writes of the colors: "There are many advantages in using them, such as constancy of the color itself."

Years of careful research work are embodied in the **Lewis Honey Grader,** a "Beeware" product. Two new colors added to present grading nomenclature, are a consensus of opinions gathered from scores of American honey buyers and sellers by Frank Rauchfuss, Denver, America's foremost honey grading authority.

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THE RACES OF BEES OF CENTRAL EUROPE

By Alois Alfonsus,

Editor "Der Bienen Vater," Austria.
Translated from original manuscript
by C. W. Aeppler.

IN Europe are found several races of bees, which are disseminated in certain definite areas. The Italian bee is found chiefly in Italy, and is found over the entire land, as far as South Tyrol, and the Canton of Tessin in Switzerland.

The black German bee has its home in Germany and Switzerland. The Heather bee is found in Braunschweig, Hanover, Oldenburg, and a portion of Holland. The Norick bee, which is called the Carniolan bee by the Americans, has its home in old Noricum (now Czeko-Slovakia) and has been disseminated extensively in Krain (Carniola) and Stairmark. Last, but not least, the Lower Austrian bee.

During the past 35 years, I have bred extensively in my apiaries all the enumerated races of bees. Also, I have experimented considerably with other races, viz.: the Cyprian bee, which were sent to me by Frank Benton; the Caucasian, Syrian, Egyptian and the black Punic bee.

The first person in central Europe to point out the Italian bee was Conrad Baldenstein. In the early fifties, Dr. Dzierzon managed to obtain a colony of this race. Many perplexing problems were solved in experimenting with this and other colonies, among which were the establishing of the average life of the worker, and the theory of parthenogenesis.

In the fifties and sixties a regular scramble resulted in the central countries of Europe to breed the Italian bee. Everyone introduced the Italian bee into their apiaries, and as Baron Berlepsch said, "everyone who did not possess at least a few colonies of Italian bees, was looked upon with disgust.' That, however, is a thing of the past.

In short, the following might be enumerated relative to the races of bees of central Europe:

The German bee (**Apis Mellifica L.**) This race is now found throughout the world. In 1763 this race was brought to North America, where the colonies soon multiplied. As a forerunner of civilization, the bee was called the "white man's fly" by the Indians. In 1845 this race was introduced in to Brazil. It was introduced into Australia in 1830 and into New Zealand in 1840. The missionaries took it to Africa. The race is also found as far north as the 64th parallel of latitude in Norway; also in Finland and Siberia. The race has ben taken as far south in Africa as Cape Colony, and Tasmania in Australia, and in South America the race is found in the Andes at 39 degrees S. latitude. The German bee is a regular cosmopolitan, just like the English sparrow, which was disseminated throughout the entire world by emigrants.

In contrast to the Italian bee, the German bee begins brood-rearing rather late in the spring; however, after commencing, the expansion of the brood nest is much quicker. They

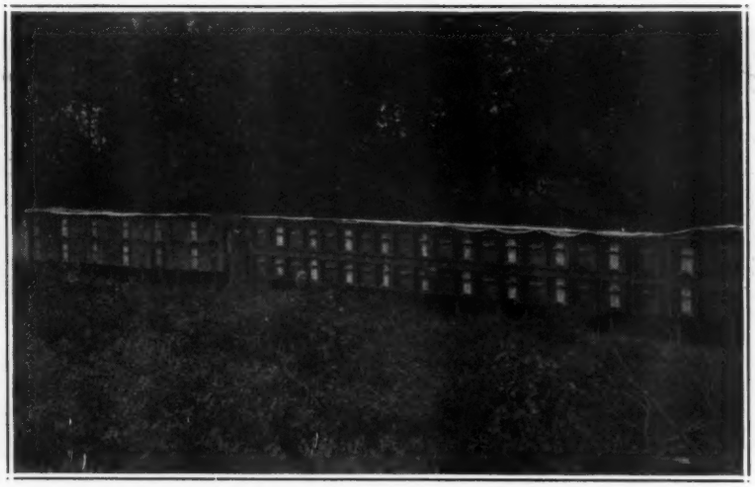
Honey and wax press.

winter well, are hardy, and protect their hives well against robbers, are apt to be less gentle than some other races.

The Heather bee **(Apis M. Var. lehzeni v. Butt))** is still darker in color than the German bee. Its propensity to excessive swarming is the result of hundreds of years of breeding to this end, and continued migration to the regions of good honey flows. A colony of Heather bees will swarm two to five times. The first swarms will also swarm the same season, and in good seasons, even a fourth generation is not uncommon. Sometimes the colonies swarm when the skep is only half filled, and it is to be understood this race of bees likes to build considerable quantities of drone comb. It would be difficult to bound exactly the region where this race is found. The race is adaptable only to the heather districts, where for centuries the practice has existed of migrating to the heather in the fall with a large number of colonies.

The Norick bee **(Apis m. var. Carnica Pollm.)** The Norick bee, called by the American the Carniolan bee, stands out as a race for their gentleness, and their lighter color than the black races. They winter admirably and are more prone to swarm than the German bee, which might be explained by the fact that in their native home they are kept in very small hives, which are soon filled, and two or three swarms result. In a large hive, however, this race will not swarm more than the German bee.

The Lower-Austrian bee **(Apis m. varieg. austriacus Alf.)** In 1867 the old, well-known beemaster, August Berlepsch, had occasion to visit Lower-Austria in the interests of the establishment of an extensive system of apiaries. He was very much surprised at the good characteristics of this race. Baron Berlepsch had occasion to examine many hundred colonies during his stay, and was surprised to find that in contrast to the German bee, this race builds very little drone comb. They are very gentle, even more so than the Norick bee; are light gray in color, and about one bee in fifty has a red-brown band on the abdomen—a monumental characteristic of the race. It is without a doubt the most valuable race of bees in Europe.



A German apiary in movable-frame hives.

When we read the journals devoted to beekeeping, published in America, we are much surprised. Here where every square inch of land is used for agricultural purposes, the extent of honey plants is limited indeed, if a comparison were to be made. In order to secure any results at all under our conditions, we must possess bees of exceptional ability. The extent of our honey flows is meagre indeed, in comparison. It has been our aim to carry on breeding experiments. In a region of heavy honey flows, it is difficult to pick out breeders. Considering our meagre honey flora, our selection of breeders can be more definitely caried out.

The gentleness of the Lower-Austrian race of bees stands foremost. The beekeeper ought not to be the slave of his bees. He should derive pleasure from his work, which is certainly not possible with races of bees that are prone to be easily excited. It is certainly probable that our Lower-Austrian races of bees will play an important role in the future, throughout the beekeeping world. It cannot be denied that the Italian race begins brood rearing early, even in cold climates. However, in so doing, during the early weeks of spring, they lose the lion's share of their field force, and consequently do not develop as fast as our race, which begins brood rearing late, retain their field force during the cold spring days, and at the opening of the honey flow are ready, and fully up to strength.

(The above article establishes Apis mellifica as "the German bee." Yet it is the same bee as in Spain, in France, in England, Sweden, Norway, Finland, Russia. In this country it has also been called 'the German bee," though it appears fully proved that the original importation was from Spain.

The writer also establishes two separate races, which are not in any way separated from other parts of Europe, by seas, mountains or other insuperable obstacles, as are the Italian, Punic, Carniolan or Norick, and Caucasian races. This is very much as if we established distinctions between the bees of Minnesota and those of Iowa, or the bees of Massachusetts and those of New York State. Upper and lower Austria are both on the Danube and not separated by any mountain ranges.

In the "Gazette Apicole for March, Dr. Jean Rathsamhausen has also a description of Apis mellifica, which he calls the "French bee," but which he says is commonly called "la petite noire" (the little black). He also recognizes the "heather bee" as Apis mellifica lehzehni, but places it as well in the French Landes or heather districts of southwestern France, as in the heather regions of Holland.

The Norick or Carniolan bee is accepted by both of those writers as a separate race. Dr. Rathsamhausen establishes the differences in the color of the bees by the markings of

A beekeeper's display in Central Europe.

the abdomen of the drones for all races, showing them from dark to yellow, in the following gradation: Black, Norick, Caucasian, Italian, Cyprian. He quotes the Caucasian bee as "the lady beekeepers' bee," because of its gentleness, and holds that it defends its hives better than any other race. He mentions the Punic **(Apis mellifica intermissa)** of North Africa, as small, dark and cross.—Editor.)

APIS AMERICANA

By A. F. Bonney

The only imported race of bees we should be able to keep pure in the United States would be one where climate and environment were identical with their native habitat. For instance, the Italian might not change in California or parts of the South, but in the North would be certain to, owing to the excess of ultra violet ray in the air, and I am not certain but that there is not a corner of our great nation where the yellow Italian will not turn dark in two or three years.

What has become of the thousands, if not millions of Italian queens and their progeny that have been imported in the past 60 years? Insects differ from other animals, in that they are helpless against changes in climatic conditions. They cannot choose amount of moisture, temperature, elevation, direction and force of winds or barometric pressure, and all insects change shape, size, color, functions and habits as they approach low, wet grounds, sanded plains, gravelly slopes and wooded hills. One kind of rabbit, the so-called "Snow-shoe," has, from being forced to exist where deep snows are frequent or constant, developed a pair of hinder feet which are out of all proportion to its size. One would think, to see its tracks, that he was following a 40-pound beast, while I doubt it will weigh 3.

As everyone knows, animals living in the frigid region are white the most of the year, and a domestic cat shut up in an ice box will turn white. Therefore, it is not at all surprising to find that the Italian bee, as a distinctive race, is soon extinguished, absorbed or lost. I cannot here find just the term to suit me, but they soon change color. They must certainly gain in hardiness, or we'd soon have no bees.

I have always considered the Italian bee an overrated yellow fraud. Had the Caucasian been introduced into the United States first, the Italian would never have been heard of. Persistent advertising has done the rest. I think I write from experience, for I have had both races in their purity, and the Caucasians were better honey producers, more gentle, worked earlier and later and were very much more hardy than the Italian.

A family of Scandinavians, or other light-haired race brought to this country and isolated will lose their blonde characteristics in a few generations. Just so the Italian bee will darken, and we have only shape, size and disposition left, and in different parts of our great country kinds of bees are being developed.

For years now I have been giving close attention to artificial selection of bees, as compared to natural selection. In the former I find I can produce almost any result I choose, in the latter there is no telling what one will get.

As a result of breeding from my very best colonies year after year, I have produced a strain of bees which I see fit to call Apis Americana. It is a large bee, dark, reasonably gentle, quite hardy, and when I state that I averaged close to 225 pounds per colony in 1920 and 1921, I think I can claim I have a good strain, race or breed of bees. I think the average in the United States for ten years past is below 40 pounds per colony.

But there is something more than kind of bees to insure a honey crop, and I often wonder how it is that beekeepers can go on year after year and be satisfied to take off 40 to 60 pounds of honey per colony. It looks to me like a waste of time.

Would you know the secret of a large honey crop? It is simple "as falling off a round log." First get a good strain of bees, then when the clover flow begins see to it that you have at least 75,000 bees to the colony; give them an abundance of room and see to it that they have ventilation. Seven square inches to each super is not too much, and the same for the cover. If you lack supers, extract and return the super to be refilled.

With the introduction of the Hubam I expect to average close to 300 pounds per colony, in seasons of normal clover flow, but I will mention that I am devoted to the chaff hive, and expect to live to convert a number of 10-frame chaff hives into modified Dadants, if I can keep out of the hospital long enough to do the work.

In the past few seasons I have bought a considerable number of Italian queens and run them in comparison with an equal number of colonies of my artificially selected bees, and in every case the hybrids (if we must so call them) produced more honey, were more gentle, more industrious and not more given to swarming.

Why should I buy Italians, or any other breed of bees?

Iowa.

The Mid-West Again

Professor Paddock writes that interest in the Mid-west Horticultural show is increasing. This show offers an opportunity for the beekeeping industry to put up a display open to all sections. The Extension Department of the college expects to make an educational exhibit, bee supply firms will exhibit the best they have in the way of equipment, and at least one boys' club team will be there. It is hoped that many honey producers will take advantage of the opportunity to make a display. Those interested should write to Prof. F. B. Paddock, Ames, Iowa, for premium list.

Save the Sweet Clover

Wisconsin beekeepers have started a campaign to stop the cutting of sweet clover along the roadsides and railroads when in bloom. A resolution requesting the co-operation of the highway departments and maintenance of way departments in this direction was passed by the State Association. Secretary H. F. Wilson has been active in bringing this resolution to the attention of the public. This is a move which beekeepers in other States may well copy. If beekeepers generally would make an organized appeal it would do much to stop the cutting of sweet clover while in bloom. If permitted to seed it would also serve to extend the area where the plant is found and add greatly to the available forage for the bees.

Heather covers large areas in Central Europe.

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THE EDITORS' VIEWPOINTS

INFLUENCE OF THE AGE OF THE QUEEN ON THE HONEY CROP

That most wonderful and wide-awake bee magazine, the "Bee World," in its June number, gives an article from the pen of Dr. Brunnich, our old Swiss friend, upon the above subject. Dr. Brunnich kept a diary of the crop of colonies, for 13 years, with the ages of the queens in each instance. He now details that experience and shows that the 2-year-old queeens headed the hives that gave the best crops. Here is a synopsis:

Years	Queens 1 yr. old lbs. yield	Queens 2 yr. old lbs. yield	Queens 3 yr. old lbs. yield	Queens 4 yr. old lbs. yield
1908	26.8	29.7	29.4	
1909	20.3	25.3	25.3	23.0
1910	16.5	21.1	16.1	14.2
1911	23.1	23.5	16.8	24.7
1912	6.1	7.7	9.0	
1913	9.5	10.1	10.3	7.4
1014	9.3	10.9	7.7	
1915	13.9	21.6	17.9	
1016	11.2	16.0	15.6	14.9
1917	17.0	16.8		
1918	56.0	62.1	58.8	
1920	19.0	16.3	12.3	14.4
1921	21.3	18.7	18.8	

From the above we take the total averages as follows:

Queens 1 year old, average of crop 19.2
Queens 2 years old, average of crop 21.5
Queens 3 years old, average of crop 19.8
Queens 4 years old, average of crop 16.4

It is well to notice that the 3 and 4-year-old queens were missing entirely during some years, and this goes against them. But it confirms our opinion that a queen in her second year is better than her first year.

However, Dr. Brunnich notes the fact that in his locality and with the hives he uses, the daily maximum of eggs laid, on average, is between 900 and 1500 eggs. He states that, since Dr. Miller and Doolittle noted egg laying of 3,000 to 5,000 eggs "in the United States, where the crops are often enormous, bees are worn out at a much higher rate than in Europe, the bees are obliged to work more intensively, and for this reason they may not be profitable if retained to the age of our old queens. Therefore, **there,** it may be advisable to change the queens **every second year.**"

This is a question fit for our experiment stations to test. It is of importance to know whether queens should be changed every year, as some persons hold, or only every other year, as the writer advises.

ROBBING! ROBBING!

Look out for robbing, when the crop is over with. No need to warn us, will say the man of long experience, and yet he is sometimes the one who neglects the most elementary requirements. So we address him as well as the novice, who reads a magazine of beekeeping only occasionally.

Did they know anything about this matter of robbing, years ago, when the hive was a closed book to the student? They did, for old Butler, in 1634, wrote as follows, placing the "bee" as the 14th enemy of bees:

"In Virgo (August) is the most dangerous time of all; then shall all the stalls in your garden bee tryed, of what mettle they are made: and Libra (September) would not be much better, but that the most spoil is done before. Little and poore swarms are now subject to robbing. Likewise those bees that are offended with the blackness and rottennes of their coms (caused through age or wet) or with abundance of noysome stopping; will moste of them go forth in the swarms, leaving a very few, sometime not past a handful, in the stok; which yet in robbing time will keepe the doore, as though the Hive were ful: but the robbers finding their weaknes, will surely spoil them, if they be not prevented.

"The robbers are thought to be poor swarms and stoks, which have not sufficiently provided themselves for winter. But indeed such ar fitter to be robbed than to be robbers. There is no thief to the RICH THIEF; who although he have enough, and more than enough, yet, by hook or by crook, he will have more, though the poor starv for it."

Yes, the colony which has swarmed, and failed to secure a fertile queen, is the one most in danger. But there is danger from robbers wherever honey is exposed, and even where not exposed, if the odor of it is perceivable. Thus we see robbers around the screened windows of a honey house, but the greatest danger is to the colonies that have become weakened. If disease happens to be the cause of their weakening, then the RICH THIEF mentioned by Butler is taking chances of getting the disease. That is why foulbrood is sometimes found in our best colonies, if it be in the vicinity.

Avoid exposing honey where its odor may attract bees. Stop all cracks in hives, except just such an entrance as they need. The best way to stop cracks temporarily is with a mixture of clay and water. The old-country beekeeper stops the cracks in a very permanent way by the use of cow dung mixed with clay; the dung acting as a mortar and holding the clay together.

Fine grass thrown over the entrance will sometimes stop robbing, if not too far along; the guards station themselves in the grass and clutch robbers as they come. There are dozens of other methods recommended to stop robbing; the best is perhaps to find the robber hive, and if the robbed hive is worth saving, just "swap" them, putting the robbed colony in place of the robber, and vice versa. But "an ounce of prevention is worth a pound of cure."

HONEY PUMP

I never liked a honey pump, and now I see that the Colorado Honey Producers' man feels as I do, for he writes in "Thebesto Bee": "Your honey can easily be spoiled for bottling purposes by the careless use of a honey pump. If you must use a honey pump, run it slow, and pump from a sump, making sure that the pump only runs when there is honey in the sump. The constant churning up of a mixture of air and honey creates a cloudiness in the honey that nothing will remedy."

Yes, and we may remember, also, that air in the honey helps to evaporate those volatile essential oils which come from the blossoms and give the honey those fine flavors which differentiate it, in taste, from plain man-made sugar. Don't use a honey pump if you can help it.

DON'T CUT PRICES

"You can save the day by selling as much honey right at your home market, direct to consumers, as you can. Push sales by every legitimate means, but **don't cut prices.** Selling a ten-pound pail of first-class honey at less than double the price per pound of honey in car lots is foolish."—Thebesto Bee.

Many a beekeeper sells his honey at wholesale and sees some of it come back to his home town to be retailed at three times the price which he obtained. Is anybody to blame but himself?

PARTHENOGENESIS IN BEES

Parthenogenesis in honeybees, which in plain words means the ability of a female to lay eggs that will hatch without having been previously fecundated, was discovered by Dzierzon, and of all the statements made by scientists this appears to be one of the most difficult for the masses to accept.

In the May (1918) number of this magazine, we gave an account of the criticisms offered by one of the most noted entomologists and naturalists, the late J. H. Fabre, upon this question. Fabre was an enthusiastic Frenchman, and the fact that Dzierzon was a German Pole was sufficient to impress him unfavorably concerning the correctness of the Dzierzon theory of parthenogenesis. In his "Souvenirs Entomologiques," he makes the following crude statement: "Coming from Germany, this theory inspires me with profound distrust. As it has been admitted with rash precipitation, even in classic books, I will surmount my repugnance to investigate Teutonic ideas and will submit it, not to the proof of arguments, against which a contrary argumentation may always arise, but to the irreversible test of facts."

As Fabre was not a student of beekeeping, the facts which he brought out had nothing to do with the honeybee, but with the "osmia," a mason bee. In that bee he finds that the last eggs laid, or part of them at least, do not hatch; while among those that do hatch, part of them are male and part female. His conclusion is that the eggs that did not hatch were the only ones that had not been fertilized and that, therefore, the Dzierzon theory that a female could lay eggs that would hatch without previous fertilization, and that those eggs would prove to be males, is absurd.

We find in the May and June numbers of "La Gazette Apicole" of Montfavet, Vaucluse, a lengthy quotation from Fabre, on this subject, the latter or June number quotation bearing the title, suggested by Fabre, of "Coup de Marteau" (hammer stroke). Evidently, the man who makes the quotation, Mr. R. Claustre, wishes to impress the public with the "hammer stroke" of Fabre's statement.

In spite of Fabre's facts concerning the "osmia," parthenogenesis in the honeybee is a positive fact, no longer needing the name of "Dzierzon theory." Worker bees, unmated, are positively known, in certain circumstances, to lay eggs that hatch as drones; queens which have been prevented from mating till they are a month old lose the desire to mate and lay only eggs that produce drones, and these eggs do hatch, even though unimpregnated. Hundreds of queen breeders have proved this to be a fact. There are, of course, instances where the eggs laid by a queen may not hatch; but this is only an evidence of barrenness common to all races of beings, in certain circumstances.

The editor of the American Bee Journal was born in France and since manhood has been an American citizen. But his judgment reproves any such foolish "distrust" as doubts of a scientific fact, just because it was discovered by a German scientist. Dzierzon discovered parthenogenesis, Leuckart, Siebold, Berlepsch, all German, explained that, in order to produce a female, the egg of the queen must be fertilized as it passes by the spermatheca, or sperm sac; the sperm entering the egg at its larger end, through what is called the "micropylar aperture." The egg which is thus fertilized becomes a female, worker or queen; the egg which is not thus fertilized, whether it has been laid by a worker deprived of spermatheca, or by an unmated queen, or by a mated queen which fails to cause it to be impregnated by pressure of the spermatheca becomes a drone. This is parthenogenesis, and it is a fact, just as much a fact as is the pregnancy of a female of the quadrupeds or of the bipeds by sexual connection with a male. It is no longer to be ranked as a theory.

It is to be regretted that a magazine, which is up-to-date and intended to properly inform its readers, should see fit to quote as "a hammer stroke" the most absurd statement made by the great Fabre, against a point which is positively known to be correct, by well-informed beekeepers the world over. Fabre was exceedingly partial in his criticisms, finding fault with Darwin, with or without cause, in almost every chapter. But he was so great a student, he wrote such wonderful descriptions, he gave evidence of so much indefatigable observation, that we can forgive and forget his mistakes.

DISEASES OF ADULT BEES

Since the discovery of several parasites of the adult bees, it has become necessary to submit diseased bees or adult bees living in hives where disease shows, to microscopic examination. The Ministry of the Journal of Agriculture of Great Britain gives the following directions to beekeepers who wish to have such bees examined for traces of parasites :

1. Specimens should be live bees of not less than 30 in number, taken off the combs, and not collected from outside the hive. It is in this way only that the true condition of the colony can be diagnosed. Dead bees will not normally be accepted, as they are unreliable for microscopic examination.

2. The bees should be placed in a small cage or box, preferably of wood, provided with ventilation holes, and having a piece of muslin fastened across the inside for the bees to cling to during transit.

3. A supply of candy sufficient to last for a few days, or a lump of sugar moistened with water, should be wrapped in muslin and firmly fixed inside of the box.

Moistened sugar is probably sufficient for as short a trip as would be likely in England, where the climate is moist. But in the United States it is better to rely only upon such candy as is used for mailing cages. The bees thus sent should be addressed to Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C., and the name and address of the sender should be also placed upon the package. In the next few years we should be able to define what is now called paralysis, or May disease, by microscopic investigation, if our beekeepers take interest in the matter.

There are perhaps several parasites of the adult bees still unknown to us.

CURE FOR DANGEROUS SWELLING FROM STINGS

The "Bulletin de la Societe Romande" gives the following statement in its June number, page 150:

"I was lately called to examine a few colonies of bees which were thought diseased, in the mountain above Vouvry. The housekeeper kindly offered me a pair of gloves for this operation, but I politely declined taking advantage of this dainty offer. After the work was concluded, I was invited into the house, when they began discussing beekeeping; and I then understood their use of gloves for handling the bees. The owner, being already quite aged and sickly, stated to me that he was stung on the thumb, a year or so ago, and quickly suffered a swelling which spread over his entire body, to such an extent that he was choking. The household was much worried over this, as no doctor could be reached readily, the nearest physician living several miles away; however, the wife had the bright thought of preparing as hot a foot bath as her husband could possibly stand. The effect of this was instantaneous, the swelling disappeared immediately from every part of the body except around the wound, where a slight swelling remained.

"I thought this interesting enough to be imparted to the readers."—O. V.

BAITS TO DRAW BEES INTO THE SUPERS

The practical beekeeper draws bees into the supers by placing in each super one or more bait sections containing comb honey from the previous season. We all know this to be quite efficient, for the colonies that might otherwise hesitate to take possession of the super.

"L'Abeille & Sa Culture," of Huy, Belgium, gives another method for baits, when no built combs are at hand. On page 88 of the June number, they advise the use of small laths or sticks dipped into honey and placed perpendicularly between the combs of the super. The bees suck the honey from the sticks and remain in the supers.

REGIONAL DIFFERENCES IN CALIFORNIA

With Notes on the Principal Sources of Honey in the Golden State

By M. C. Richter

IT may not be amiss to give a short sketch of the physical characteristics of California. The State has perhaps the most diversified topography to be found anywhere in the Union. California is truly a state of contrasts. Mt. Whitney, with an altitude of 14,502 feet, is the highest point in the United States. A very large part of the Sierra Nevada Mountains as more than one mile above the sea. Death Valley, although it has not been surveyed, is supposed to have depressions exceeding 400 feet below the sea level—the lowest point in the Union. California possesses the only active volcano, Lassen Peak, and the State has more earthquakes than all the rest of the United States. California has had at least one earthquake every month during the past five years. The earthquakes, fortunately, have caused no material damage, and it may be said that a year of such tremors as may be felt in California cause actually less damage to life and property than any one of a hundred thunder storms that may be experienced during a summer in the East.

Climatically, Death Valley has established a record for the highest natural air temperature in the world. On July 10, 1913, a temperature of 134 degrees F. was recorded by a carefully-tested U. S. Weather Bureau thermometer which was exposed in the shade in a standard ventilated instrument shelter containing a double roof with air spaces between. It is not uncommon for Death Valley to experience temperatures of 100 or higher on every day during July and August. California has not the record for the lowest temperature. The lowest figure reached in this State is 40 degrees below zero. We have, however, in mid-summer, the coolest place near the sea level in the whole United States. Point Reyes has this distinction, and it also has the distinction of being the windiest spot near sea level in the country. The average summer temperature here is 54 degrees, and the wind velocity often reaches 60 miles an hour. Contrast this spot with the great Sacramento and San Joaquin Valleys, where almost all summer there is unbroken sunshine.

The Golden State has the largest variety of products of the soil, and its beekeeping regions are likewise unique in their diversification. In Fg. 1 it will be noticed that California has has been divided into five climatic states. On surveying these regions it will be well to study carefully, in addition, Figs. II and III. In a study of a beekeeping region it is necessary to keep in mind the three important factors bearing on nectar secretion, namely: altitude, latitude and rainfall. There follows a brief summary of the different regions.

The Northern Coast Regions

The greater part of this region is unadapted to beekeeping, owing to a lack of melliferous flora in the large timber tracts. The coastal section of this region is likewise cool and damp in summer. Away from the

Fig. 1.

PHYSICAL MAP OF CALIFORNIA
FERTILE VALLEYS NESTLED IN THE LAP OF PROTECTING MOUNTAIN RANGES, WARMED BY THE GREAT DESERT FURNACE AND MODERATED BY THE IMMENSE HEATING PLANT OF THE PACIFIC THAT VARIES IN TEMPERATURE BUT A FEW DEGREES THROUGHOUT THE YEAR; MOUNTAINS WITH THEIR INEXHAUSTIBLE RESERVOIRS OF SNOW SENDING DOWN CONTINUOUS STREAMS OF WATER TO TURN THE WHEELS AND IRRIGATE THE LAND; FORESTS COVERING ONE-FIFTH OF THE AREA OF THE STATE WITH A SPLENDID SUPPLY OF TIMBER WITH WHICH TO BUILD HOUSES; GREAT, CALM HARBORS; BEAUTIFUL RIVERS AND LAKES TO THE NORTH; THE HIGHEST AND LOWEST ALTITUDES OF THE COUNTRY. MOUNT WHITNEY AND DEATH VALLEY—THIS IS CALIFORNIA AS MAN FOUND IT.
EUREKA
KLAMATH
MT. SHASTA
GOOSE LAKE
COAST RANGE
SACRAMENTO
SACRAMENTO VALLEY
LAKE TAHOE
SAN FRANCISCO
SAN JOAQUIN VALLEY
SIERRA NEVADA
MT. WHITNEY
DEATH VALLEY
TEHACHAPI RANGE
SANTA BARBARA
LOS ANGELES
SAN GABRIEL MTS.
SAN BERNARDINO MTS.
MOJAVE DESERT
SALTON SEA
IMPERIAL VALLEY
SAN DIEGO
COLORADO RIVER

Fig. 2.

coast, however, and in parts of Siskiyou and Shasta Counties, there are some very fertile valleys where may be found some of the best beekeeping opportunities in the State. This section is undeveloped but very promising, and the seasons are short and rapid. The spring bloom consists of manzanita, ceanothus, filaree, burr-clover, etc., and the main crops are white clover, some red clover, white sweet clover, alfalfa and tarweed.

The Central Coast Region

The northern section of this region, with the possible exception of Lake County, is not conducive to honey production. At times, however, crops of eucalyptus honey are harvested. In the central portion the parts of Sacramento, San Joaquin and Contra Costa Counties included in this region, are favorable for bees. The principal flora consists of fruit bloom, wild mustard and turnip, cultivated asparagus and onion, sweet clover, alfalfa and honeydew- variously known as bug juice, black jack and crude oil. In this section there are two brothers that handle about 2,500 colonies; they do all their own work, excepting for the three summer months they employ one helper. To cite an example of the methods used by these hard-working boys, it might be mentioned that when a yard of approximately 100 two-story colonies is is to be moved from one locality to another (a distance of some 30 miles, and perhaps 20 miles from home) only one of the brothers will do the work. The White truck will leave home about sundown and will return about 1 or 2 o'clock in the morning with the task completed, single-handed. Several of their yards are visited only by boat. During winter the Kechnen brothers go fishing—not for sport, for the fishing industry to them means several thousand dollars annually.

The southern portion of this region is fine beekeeping territory. In the northern section of this portion Santa Clara County is the mecca of queen-breeders. Early fruit bloom, followed by one or more intermittent, slow flows, make this county favorable for this purpose. Santa Clara County has a variety of good mountain flora, including manzanita and black sage and, owing to the heavy rainfall in this section, it is considered good territory, though at present it is quite undeveloped. The four southern counties in this group are mountainous, and abound in sage, wild alfalfa, wild buckwheat, manzanita, etc. These counties comprise one of the best beekeeping sections of the State. Again, the most favorable localities are those of high elevation, with abundant rainfall. Unfortunately, most of these localities are inaccessible.

The Southern Coast Region

Undoubtedly this region is more thickly populated with beekeepers than any other. It is here that most of the large California crops have been harvested. It is a world-renowned honey section, not only on account of the immense yields in favorable seasons, but also because it is the center of production of two of the world's best honeys—sage and orange. Harbison discovered the region some 65 years ago, and for many years now the saving of wasted sage nectar has amounted to more than one million dollars annually. Commercial orange honey production was made possible during the past few years through better beekeeping practices having been employed by the more enterprising beekeepers.

Although sage and orange predominate, there are several other excellent sources of honey in this region from which surplus crops are obtained. They are manzanita, eucalyptus, mustard, Lima bean, wild alfalfa, wild buckwheat, sumac, tarweed, blue curls and others. Migratory beekeeping is practiced to a con-

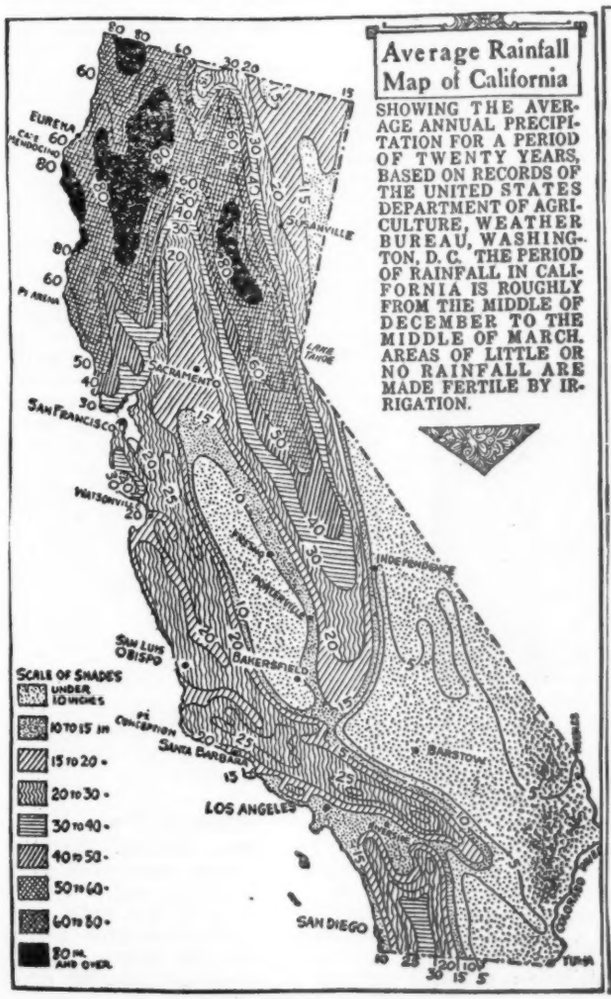

Average Rainfall Map of California
SHOWING THE AVERAGE ANNUAL PRECIPITATION FOR A PERIOD OF TWENTY YEARS, BASED ON RECORDS OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, WEATHER BUREAU, WASHINGTON, D. C. THE PERIOD OF RAINFALL IN CALIFORNIA IS ROUGHLY FROM THE MIDDLE OF DECEMBER TO THE MIDDLE OF MARCH. AREAS OF LITTLE OR NO RAINFALL ARE MADE FERTILE BY IRRIGATION.
SCALE OF SHADES
UNDER 10 INCHES
10 TO 15 IN
15 TO 20 "
20 TO 30 "
30 TO 40 "
40 TO 50 "
50 TO 60 "
60 TO 80 "
80 IN. AND OVER
EUREKA
SACRAMENTO
SAN FRANCISCO
SAN LUIS OBISPO
BAKERSFIELD
SANTA BARBARA
LOS ANGELES
SAN DIEGO
LAKE TAHOE
INDEPENDENCE
BARSTOW

Fig. 3.

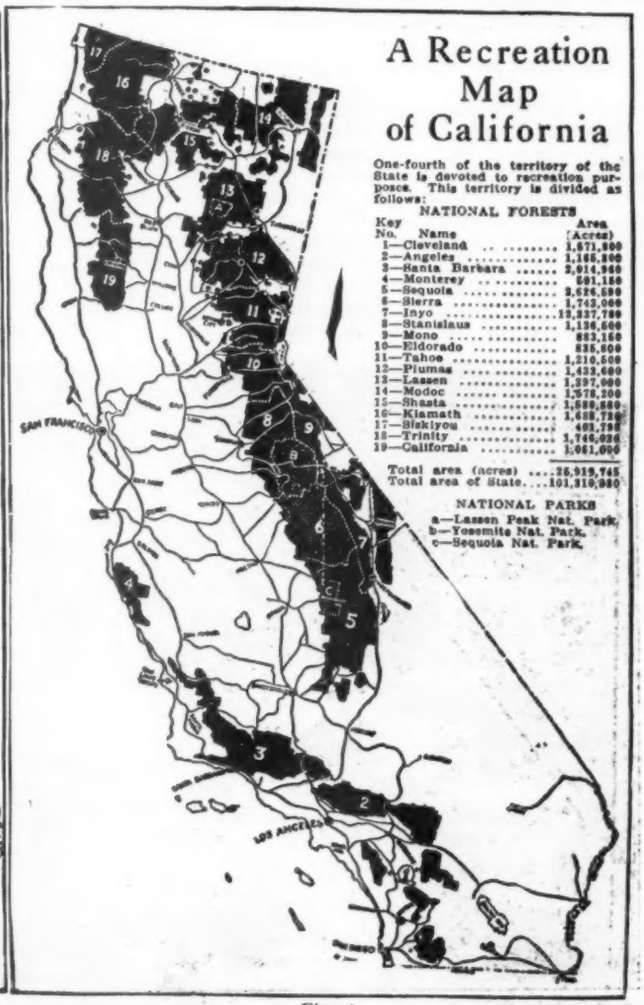


Fig. 4.

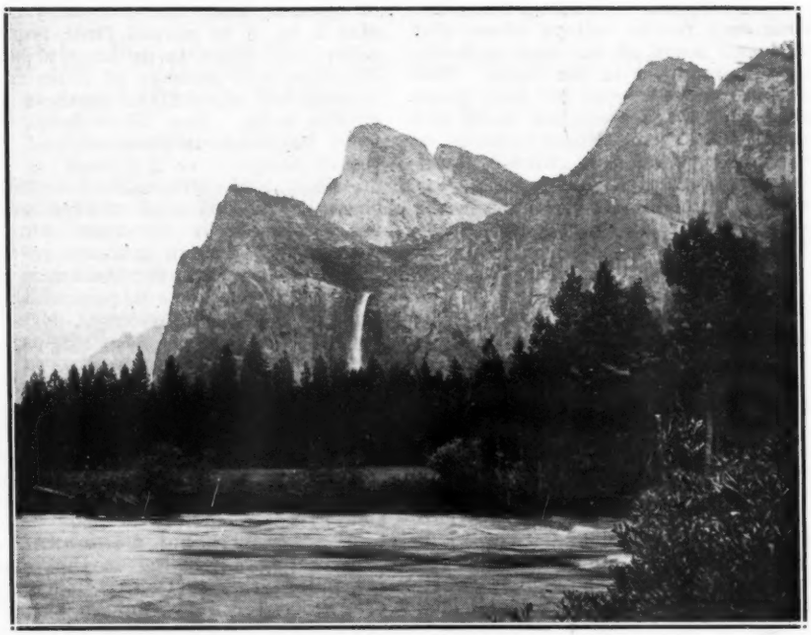
siderable extent and is a very lucrative pursuit to the beekeeper who has made a close study of this region in the relationships which it bears to the seasonal variations of the plant life. He takes into consideration, also, the cost of migratory beekeeping.

The Interior Valley Region

Irrigation is largely responsible for beekeeping in the interior valleys of California. The beekeeping practices in this region are altogether different from the others. The seasons are long and it is not uncommon to find them extending from February to December. Ordinarily the honey flow is slow. Exceptions are found in the orange flow, notably in Tulare County, and in some of the northern counties where the wonderful star thistle grows. Alfalfa is the principal honey plant. Other sources of nectar are fruit bloom (almond and prune growers offer beekeepers several dollars a colony for each colony brought to their groves while the trees are in bloom), white sweet clover, several species of eucalypti, melons, smartweed, button-willow, carpet grass, jackass clover, alkali weed, tarweed, blue curls and cotton, in the Imperial Valley. Beekeeping is developing very rapidly in the northern portion. This section has the advantage of higher latitude and a greater abundance of precipitation.

The Mountain-Plateau Region

Apiculturally this region has been explored but little. The Owens Valley, in Inyo County, is known as a most excellent section. During winter, at Independence, sometimes several feet of snow falls. The spring flow comes from willow, fruit bloom, oak and locust. Alfalfa is the main crop and is followed by sweet clover and wild buckwheat. Rabbit-brush yields nectar in the fall. A crop of honey is practically always assured at high altitudes where there are honey-producing plants present. Owens Valley is certainly not an exception. In the north, Lassen County is a very promising district, and it is the writer's belief that in the future many good beekeepers will be located in the northern part of the Sierra Nevada Mountains. There are undoubtedly many most excellent locations along the entire western foothill slope of the Sierra Nevada. It should be remembered that the altitude of greatest rainfall here is between 5,000 and 6,000 feet. Above 6,500 feet there appears to be a constant decline in rainfall, with increasing altitude amounting to about 0.40 inch per 100 feet rise. (Smiley, F. J. A Report Upon the Boreal Flora of the Sierra Nevada of California, University of California Press, Berkeley, 1921.)



Bridal Veil Falls in Yosemite Valley. California is rich in wonderful scenery.

Scene on Merced River in California.

The National Forests

The United States owns some very good beekeeping territory in California. Fig. IV indicates where the National forests of the State are located. The Forest Service issues what are known as 'Special Use" permits. One of such permits is issued for the use of beekeepers. Apiary sites may be secured at a minimum charge of $10 per annum and 10 cents per colony for each colony over 100. The acreage allotted for such apiary sites is from one to three acres. Colonies are to be counted in April and payments are due on May 1 of each year. The permits may be extended or renewed from year to year by the forest supervisor. The Government does not permit the overstocking of its range, and when a beekeeper has a location on the Reserve, the Supervisor will not issue another permit within a two-mile radius of an already established apiary site. The National Forests are a wonderful institution. They are open to all persons for all lawful purposes.

California.

(The writer is indebted to Mr. A. H. Palmer, of the Weather Bureau of San Francisco, for the climatological data given herein.)

Paint on Tin

In the June Journal 'Nebraska" asks how to make paint stick to iron or tin. It is on account of their being slightly greasy that paint "rolls" and runs off. Don't scratch it or rust it; just wash the grease off with plenty of high-grade gasoline and let it dry thoroughly.

California.

FINDING THE QUEEN

By Allen Latham

"Please tell me how to find the old queen." Is there a queen breeder who does not have that request made with many an order for a queen bee? When an expert is sometimes nearly stumped to find the queen, the amateur has cause for such a request as this. With crooked combs and black or mongrel bees the finding of the queen is not a pastime sought even by the expert. With well-spaced combs of high grade and with Italian bees the task of finding the queen becomes much simplified.

Queen-finding naturally divides itself into two classes: First, locating the queen in the brood nest, and second, locating the queen on the outer combs or on the body of the hive.

Under ordinary conditions one will look for the queen in the brood nest, especially if bees are finding nectar and the danger of robbing is not to be guarded against. I will, therefore, discuss this class first, and try to make clear the various procedures which have proved most effective in my own experience.

When a colony is disturbed, nine queens out of ten immediately start moving over the combs, leaving the brood nest and even the combs if the disturbance becomes continuous. It is therefore of prime importance, if one is to find the queen in the brood nest, to be most careful in preliminary operations. Little if any smoke should be used, for one single puff of smoke sent into the hive may cause the queen to desert the brood nest. A crinkle of smoke may be sent along the entrance just to intimidate the guards there, but the force must not be great enough to send it into the hive. The cover should be taken off most gently and again smoking should proceed no further than to let the smoke waft along the top bars; under no consideration should the smoke be driven down between the top bars.

If one prepares a strip of dark cloth in advance, he will find it a great aid. This strip should be about 20 inches long and 8 inches wide. This is laid lengthwise over the middle of the hive as soon as the cover is removed. It serves to cover the brood nest and prevents light from alarming the queen. With the cloth in place, remove the outer combs on one or even both sides. The queen is now practically certain to be on one of the combs beneath the cloth and, if one continues careful, will be soon found. Tip one comb back anl look at once upon the outer surface of the next comb. Often the queen will be seen running down on this comb or just disappearing between the comb and the bottom bar. If the queen is not seen on the second comb, then lift out the first and look it over. If the queen is still not found, proceed with each remaining comb after the same manner. Nine out of ten queens will in this way be found within three minutes from the time the hive is opened.

If the queen is not thus found, arrange the combs in pairs which may be left either in the hive or stood on end leaning against the hive. Wait five minutes and then carefully split each pair, glancing down over the inner surfaces as this is done. The tenth queen is usually quickly found in that way. But if not found now, she should be left for another trial later. An hour or so later the process may be repeated.

As one becomes more expert he will soon look for where the queen is rather than for the queen, and having found where she is, proceed to search for her. An expert can usually tell upon lifting out a comb whether the queen is or is not likely to be upon that comb, and so when one becomes more expert he may then begin to cut corners. The amateur will find it well, however, to follow carefully the rules laid down. I will repeat the caution that one must proceed with great care if he is to succeed in finding quickly the queen in the brood nest, and must avoid in every way possible getting the queen frightened. Once frightened the queen is thereafter anywhere in the hive, or even outside, and the finding of her proves a most exasperating task.

I will now discuss the finding of the queen outside the brood nest. The opportunity of variation of procedure here is very great and space will not permit me to enter into all the possible variations. All are based upon the fact that the queen, when startled, will as a rule leave the brood nest, generally traveling upward.

Every beekeeper of much experience has noted the frequency with which he has seen a queen upon the top bars just as he removed the cover, or else seen her body just disappearing between two top bars. Many of us have noted, too, the frequency with which the queen is on the cover of the hive itself, and some of us have found that out too late, to our grief. I have no doubt in my own mind that many a good queen is lost through this fact. How often have my customers written to me that they found everything O. K. with the queen laying nicely, but a week later found nothing but sealed brood and queen cells, but no queen. They usually blame the queen and expect another sent to replace her. More times than most of us realize, the cover is laid aside with the queen on it with a few score of workers. All are usually dumped in the grass when the cover is replaced, and the queen may or may not find her way into the hive. Sometimes the bees are not dumped off the cover, but the cover is rudely replaced, crushing the queen, which has sought the best refuge she can in a corner.

Fortunately, this habit of the queen is not a cause of loss only, for it can be made a source of real profit. Especially with nervous bees, ill-kept hives, and model colonies in times of dearth, can one use this habit of the queen to great advantage.

Many are the times that I have puffed some smoke into the entrance, given the hive a bump, and after waiting long enough to count 25 slowly, removed the cover and discovered her ladyship on the under surface of the cover. This can be done only when there are no supers. If supers are there, one has to remove them, and it is difficult to perform this trick after that. We must, therefore, modify it.

When, because of supers, one cannot try finding the queen on the cover, he can make use of an empty super to which has been nailed an inner cover. It is also well to insert a partition in this super which will come down close to the top bars. Or one can use a full depth body with empty combs in the same. Either of these is placed on the hive after the removal of supers and excluder. Smoke is lightly blown in at the entrance and the hive is then drummed a little with the hands. The queen almost always heads at once for this added story to the hive, and if a few bees go with her she will stay there for some time. Usually within two minutes one can remove the super and proceed to look for queen. If he prefers, he can wait some six or eight minutes until several pounds of bees are up there with the queen.

If it is a season of robbing, one must, as he begins to drum, lay a cloth along the entrance or otherwise stop the ingress of robbers. And in every case, as soon as body is removed, the cover, or supers and cover, must be at once set in place. The entrance should not be fully opened at once, for the colony is demoralized and will prove an easy prey to robbers. When there seems to be a spirit of defence about the entrance the cloth may be pulled aside a little at one end.

Now move off a rod or so with the body or super containing bees and queen and dump same upon a sheet or some smooth place where it will be easy to spot the queen. Most of the bees will return to the hive, but if the hive has been drummed over two or three minutes many very young bees may be lost. Care must be used in getting these bees into some receptacle and returning them to the hive where they can be dumped by the entrance. Often the queen can be spotted in the super with the partition without dumping out the bees, but the body of empty combs does not offer the same ease.

The writer has two or three shallow supers, with one side covered, for use in queen-finding. While waiting for bees and queen to ascend into one, he places another in position on another hive, keeping two and three in use continuously. These are used only in time of dearth, when robbers soon stop queen-finding by the usual methods.

Sometimes, when in a hurry, this plan is followed: All the combs are removed and stood about the hive. The body of the hive is glanced over to see if queen may have left the

combs. Then, each in turn, the combs are shaken into a box and replaced in the hive. While doing this, a sack is kept lying over the hive and is lifted when a comb is inserted. If this is not done, the robbers may get too big a start. The box into which the bees have been shaken is tipped back and forth in a good light and the queen usually quickly seen. Bees are then dumped before the hive, the entrance of which has previously been nearly closed. In the shaking, a lot of old bees always return at once to the entrance and generally take care of any robbers, if the entrance has been contracted.

Finally, there is one method which never fails unless for the unusual case in which the queen is so small that she will pass through excluder zinc; the writer in all his experience having had it occur but once.

The hive is set aside and an empty excluder zinc fastened the length of the entrance. Every comb is now shaken in front of the hive and placed inside, an inner cover being kept on the hive during the process and being lifted only when a comb is to be inserted. This cover helps to check robbing and also may prevent the queen from dropping into the hive when some comb is shaken, a possible and annoying occurrence. When all the combs are in the new body, the old is hanged, bottom up, in front of the new to dislodge bees clinging to the walls. All is now left for the bees to work their way into the hive. If smoked in, the queen may be forced through the zinc. It is better to scratch the bees away from the zinc once in a while, and the queen will quickly be found trying to get through the zinc. In case the queen is not soon found that way, she is doubtless in a cluster of bees under the front end of the hive, and these bees should be dislodged and started into the hive.

One need never despair of finding the queen if there be one in a hive, and it is the hope of the writer that many an amateur may find helpful suggestions in this article.

Connecticut.

VALUATION OF A GOING HONEY PRODUCING BUSINESS

By Elmer T. Beach

I have apiary and equipment on which I would like to place a valuation so that I may keep an accurate cost system from now on, but I do not know how to estimate the present value of what I have.

How would you go at it? It is as follows:

200 colonies of bees in 10-frame dovetailed hives, all pure Italian, combs wired; 151 of the queens are 1½ years old, 94 of the queens are 6 months old, and 5 queens 27 months old. Of the hives containing the bees, 40 were bought in 1900, 30 in 1902, 60 in 1910, 30 in 1912, 40 in 1916; all in good condition, well painted. Bottoms of oldest replaced four years ago.

17 empty hives, painted, with frames bought in 1916.

88 full-depth supers of combs used since 1900, 56 used since 1902, 102 since 1905, 154 since 1916.

1 wheelbarrow, cost $4.50 10 years ago.
1 No. 18 extractor, cost $21 in 1900.
3 honey knives, Woodman.
1 Woodman steam knife, used three years.
1 Peterson capping melter, 1916.
1 No. 25 extractor, 1916.
210 escapes in inner covers, 1916.
1 capping can, 1902.
Other tools, $20, approximately.
1 Ford Formatruck, cost second-hand, in 1918, $595.
1 Honey house 12x16, built in 1902, frame and shingle construction, lined with tar paper.
1 outyard house 16x20, built in 1916, same construction.

A SUBSCRIBER.

There are two methods of valuation, and it depends somewhat upon the occasion of the valuation which procedure is best. If one is selling out and turning his property into cash, all in the world that is wanted is the present value of the property. In such cases the usual method is to proceed with the valuation, throwing out and allowing for wear and tear, and setting down only present cash value, according to the actual condition of the property at the time. If the valuation, as in this case, is merely to arrive at approximate present worth, with the idea of continuing the same ownership, more attention is given to the length of time in use, and arriving at the valuation in accordance with established rules of accounting. In either case, only one thing determines present value, and that is the expected life of the property under its conditions of service. That established, the present value becomes an equation as follows: Total life is to the total value, as time in use is to X or depreciation. And depreciation, or used value, away from total value leaves net present sound value.

Valuing Colonies

It is optional and perfectly good accounting either way, whether the owner desires to consider the value of his colonies

First. As merchandise and stock in trade, the same as any other supplies on hand. In which case all colonies on hand at the beginning and end of a fiscal period must be inventoried along with other stock in trade. Or,

Second. An equipment investment, the same as hives and stack, put into the investment account, and the value written off over the period of the life of the hive stack with the hive values. Or,

Third. As equipment investment, charged into investment account at an agreed valuation, but not subjected to charges for depreciation.

This latter method is the method I have adopted and prefer, since a colony of bees, as long as it remains a working colony of bees, naturally by growth maintains itself at working strength, and there is no wearing out which is not made good by themselves from day to day. In other words, whatever value our colony represents with its queen is always present, regardless of the age of the hive which they occupy. I have adopted a colony value of $5, but that is optional with the owner.

Built Wax Combs

If you have adopted the method first mentioned of treating bees as supplies on hand, the value of wax combs, too, may be disregarded in investments. But for me, I much prefer to capitalize the work of my bees represented in the wax combs along with the bees themselves, and write the comb value off over the period of the life of other stack investments. No one would hesitate a moment about capitalizing the drawn aluminum combs he may buy. Drawn wax combs are better, and once built by the bees, last as long as the frames they are on. I have therefore valued a wax brood comb at 50c for the bees' work, and charge them into the investment account.

Queens and Equipment Maintenance

It will be noted in the problem submitted that some of this man's queens are six months old, others 18 months, and some 27 months of age. Anybody knows, of course, that a queen 27 months old is not likely to be worth as much as one 6 months old. At the same time there is such a thing as splitting hairs in accounting as well as everything else, and to give a different value to one working queen over another would be splitting hairs. You cannot be bothered changing your investment accounts every time an old queen dies and you get a new one. The accounting rule which applies in such matters is the same as applies in the matter of maintenance and upkeep of real estate and equipment. The original investment is charged into investment account ,and then maintained at that value by charging cost of upkeep into current-operating expense for the fiscal period. So in this case. We will charge our working queen and colony into investment at an agreed value. We will maintain them at that value by charging cost of requeening into current apiary operating expense, whether the queens are purchased for cash or reared in one yard and used throughout the various outyards. Give the yard producing queens credit in their operating expense for queens produced at an agreed value, and charge to the operating expense of the yard where used. In case a queen is reared and used in the same apiary, no account need be made, unless it is easier, since the credit will exactly offset the charge. If new combs are produced, or frames of brood taken for increase to be added to investment, similar credits at agreed prices should be made to the apiary furnishing the increase or swarms, and charged over into investments. Upkeep of hive stacks and equipment should be handled the same way. See table.

In order to put our problem in shape for ready reference, I have rearranged the assets into groups based on the rate of depreciation permissi-

ble in each group as determined by accounting rules. Each line and columnn has been numbered for reference.

Group I.—Honey Houses. We do not know the cost of these, and one of them has been in use 19 years. To establish replacement value, we secure an estimate from a contractor what it would cost today. That is replacement cost. Government tax experts are agreed on 20 years as the expected life of this class of construction. Five per cent per annum may therefore be charged to depreciation, or one twentieth of its new value. The Government allows 3 per cent write off on mixed wood, stone and brick construction, and 2 per cent per annum on reinforced concrete construction.

Group II.—Hive Stack Investments. To establish replacement value of all this group, some of which have been in use 21 years, we go to 1922 catalog and take the value of the same article new. Thus new 10-frame Langstroth hives, complete, without foundation, is $4.85; foundation and wiring $2 additional. We have also 10 drawn wax combs at 50c each, $5, making a total replacement value of $11.85 per hive. The other items of Group II are valued in the same manner.

There are no established rules covering such property. To determine the probable life of such property in this man's care, we now examine the oldest. They have been in use 21 years. According to the best of our judgment we find they will give good service for at least four years more. That will establish expected life in his hands at 25 years. Therefore we may charge off each year one-twenty-fifth, or 4 per cent of the original cost into cost of production, and the number of years in use time the annual write-off gives total depreciation or used value.

Group III.—Miscellaneous Equipment. In the case of all such assets as these, the Government experts have agreed on an expected life of ten years. Hence a write-off of 10 per cent of cost or replacement value should be made. The original cost of the No. 18 extractor and the wheelbarrow are given. In case of the special tools, an arbitrary present value without depreciation is given of $20, and in the case of the old Woodman knives and capping can, which have already been in use 19 or 20 years, but are still worth something, we follow the same course, and say they are simply worth the value placed in column IV. The rest of the articles are valued from current catalog.

This group presents a few peculiarities. Extractor No. 18 was bought in 1900, was used till 1916, when the new extractor was purchased, and then, presumably, thrown aside, but is still of value, perhaps. At the end of 10 years of service, it was all charged off, if books were being kept. It cost $21. It often happens that property well taken care of lasts longer than expected life. But no one will be permitted to charge off more than the cost or replacement value. Therefore, in figuring depreciation and present value on this item, we set up reserves for ten years, or the entire value of the extractor, $21, and leave it among the equipment. The present value is nothing. If the owner sells this for anything it constitutes an item of "profit from sale of capital assets" to fill in on line 23 in your income tax report on form 1120. Whatever this owner realizes out of that extractor is clear profit.

In valuing the replacement value of Peterson capping melter and the new extractor, we take the catalog list value for 1922 and add the estimated cost of installing and setting up the machinery, which gives replacement value.

Group IV.—Vehicles. In the case of trucks and vehicles, the condition of substantiality and working conditions are so vastly different there is positively no general rule to follow. Just one thing determines—how long will that truck last you? If your judgment says 5 years, write off 20 per cent every year; if 4 years, then 25 per cent; if 8 years, then 12½ per cent. The entire original cost must be charged in at the end of expected life, or may be charged in that fast, and no faster, **unless experience shows it is wearing out faster than that.** The judgment of the owner is final, with tax experts and everybody else, unless he can prove you are wrong. They do not usually undertake it.

In the problem given we have a second-hand truck purchased three years ago. Nobody knows how long it was used before we got it. We do know, however, what the agreed valuation was at the time of purchase—$595. Now we go to the truck. On examining it and looking it over, we find our work is not very heavy, and to the best of our judgment it will do

Numbered Schedule for Reference

Col I Date acquired	II Particulars of Investment		III Line #	IV Cost or Replacement Value	V Years in use	VI Amount of Annual Charge off	VII Total Depreciation in use	VIII Present Sound Value
	Group I = Honey Houses		1					
1907	Honey House 12×16 as specifications	Est.	2	300 00	19	$15.. =	28500	$ 1500
1911	Outyard House 16×24 "		3	375 00	5	1874 =	9370	28130
		Total	4	675 00			37870	29630
			5					
	Group II Stack Investments		6					
1900	40 10fr Langstroth Hive Complete with Foundation & Combs	1185	7	44400	21	1846	38816	5584
1902	30 " " " "		8	36330	19	1427	27018	8532
1910	60 " " " "		9	71100	11	2844	31284	39816
1915	30 " " " "		10	36330	9	1453	12795	23753
1916	40 " " " "		11	47400	5	1896	7480	39920
1916	17 " No foundation	485	12	8245	Never used		—	8245
1900	88 10fr Langstroth Extracting Bodies with Found & Combs	925	13	82280	21	3291	69111	13169
1902	36 " " " "		14	53360	19	2064	39782	13578
1907	102 " " " "		15	95370	16	3814	60024	34346
1916	154 " " " "		16	142990	5	5734	27795	114195
1916	210 Inner Cover with Bee escapes	60	17	12600	5	504	2520	10080
		Total	18	635845			352622	283223
Various	200 Colonies Italian Bees & queens	Est.	19	100000	No Depreciation		—	100000
	Group III Miscellaneous Implements	Total Stock	20	735845				413223
1900	# 18 Extractor		21	210	10	210	210	000
1902	2 Woodman Honey Knives	Value	22	200	—	20	—	200
	Other Bruce Tools	"	23	2000	—	200	—	2800
	1 Capping Can	"	24	1000	—	100	—	1000
1912	Wheel barrow		25 c	450	9	45	405	45
1916	Peterson Capping Melter	List 1700 Installation 300	26	1980	5	195	975	1005
	#25 Extractor	List 3500 Installation 400	27	4000	5	400	2000	2000
	Woodman Steam Kumfy Generator		28	758	5	75	375	375
		Total	29	12468			5825	6643
	Group IV Truck		30					
1918	Ford Form a Truck 2d Hand	Value	31	59500	3	9912	26730	29764
			32					
	Grand Total for All		33	$875295		$39674	$396098	$480197

Invoice of beekeeper's outfit.

service three years more. That establishes expected life on this second-hand truck of 6 years. We may charge off 16 2-3 per cent every year to get present value.

In the case of a new truck, you must begin charging off at once on purchase. The expected life must be established either from previous experience, or by information furnished you by the firm you purchased of, as to the probable life in your work. Should experience show you are charging off too much or too little, change the rate at any time, so that when it goes out of commission the last of its original cost will have been absorbed in depreciation charges as nearly as may be.

Having figured and filled in our cost or replacement values in column IV, we next figure out the number of years in use for column V, and the annual write off in dollars and cents in column VI. With these figures we compute the total amount of reserves, or used-up values, on each asset shown by the figures in column VII. Take the used-up values in column VII from the replacement value in column IV leaves net sound value shown in column VIII. Charging off any item must stop when figures in column VIII reach zero. Whatever use you get after that won't cost your crop anything.

Having completed our figures, adding column IV gives $8,752.95 total investments in equipment. Total of column VI, $396.74, is the total depreciation, or used-up value to charge off each year. Total column VII, $3,960.98, is total reserves for depreciation, or used-up values. Total column VIII, $4,801.97, is present net sound cash value of investments on which owner is entitled to 6 per cent interest per annum.

This answers the inquiry. I hope I have succeeded in making it plain.

Assuming that this man is now about to open his books, I might go a little further and indicate his first journal entry. On listing his business assets, we find he has:

Resources

Cash on hand and in bank (assumed)	$ 375.25
Equipment, as valued above	8,752.95
Other merchandise and supplies, for resale perhaps, (assumed)	3,750.00
Accounts receivable, per ledger (assumed)	1,200.00
Total resources	$14,078.20

Liabilities

Accounts Payable (assumed)	$ 700.00
Notes payable (assumed)	2,000.00
Reserves for depreciation, as shown by above valuation	3,950.98
Total liabilities	$6.650.98
Net present worth in business	$7,427.22

This amount should be placed to the credit of the proprietor in his investment account.

When these are posted, you are all ready to proceed with the year's business, charging and crediting the proper accounts as the transactions come along.

Besides all regular expenses, and costs, you must charge into your cost of production, or direct to loss and gain account, the amount of the years' depreciation of wear and tear as shown by the footing of column VI, $396.74. This may be done as a single journal entry at the end of the year, just before you close your books and declare profit, thus:

Cost of production (or loss and gain) Dr. ----------$396.74
To reserve for depreciation, Cr. ---------- 396.74

Or, if you prefer to enter monthly, you can divide the whole amount by twelve, and make a similar entry each month:

Cost of production, Dr. -----$32.80
To reserve for depreciation, Cr. ---------- 32.80

whichever you prefer.

Michigan.

BEEHIVE COVERS

By C. E. Fowler

As I have spent many dollars in experimenting on bottoms and covers, I will give some of the benefits that I received from that money.

The Svenson top bar is the most foolish beehive idea I ever saw or heard of. I am thinking of trying a queen excluder on that principle, something that the queen won't try to go through and won't bother bees like the present standard wire queen excluder does.

The big bugbear of modern beekeepers is "swarm control," and one of the little bugbears is moisture in the hive.

I used to have moisture in the hive, and mouldy combs, but that is a thing of the past; never to bother me again, as I have entirely eliminated it by insulation and ventilation (not draught).

Complete insulation, including Fowler's bottom insulation (see cut) and bottom ventilation, or better called bottom diffuser of water vapor, the very best way to get rid of water (vapor) from a hive.

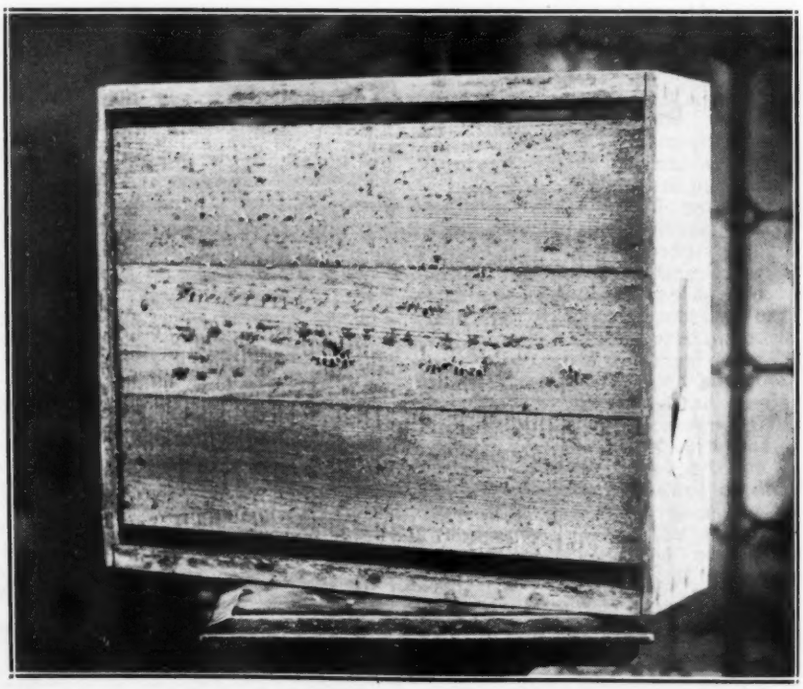
When bees eat honey and breathe, the hydrogen of the honey unites with the oxygen of the air and produces water in the form of moisture (invisible) and if the air of the hive becomes saturated the moisture condenses. The inside air of the hive is generally colder than the cluster and depends on insulation.

If the internal temperature of the hive (not cluster) is cooler than the dew point of the internal air the "dew" deposits on the coldest part of the hive.

If the top has the least protection the moisture forms in drops on the under side of the cover, and if there is enough of it dropping on the bees and the air is cold enough, the bees (some of them) will be frozen in a mass of ice; but that is not beekeeping—that is the way they keep fish.

I use glass (14x16 inch) covers and over the cover I use one, two or three pillows like bed pillows 3 to 4 inches thick. I fill with reed seeds (cattails).

When bees are breeding directly under the cover, and the bulb of a thermometer is directly over the brood, and on top of the glass (under the cushion) the thermometer registers 97 degrees; the outside of the glass is within 2 degrees of the brood and moisture cannot condense on the cover.



Fowler's bottom packing, to be placed over bottom board.

If the opening at the bottom of the hive is too small, and the moisture cannot diffuse fast enough, the dew point is reached in the hive and the moisture condenses in the coolest part of the hive.

E. F. Phillips advocates a bottom packing below the entrance, which is good, but I find it less than 10 per cent as good as a bottom packing above the entrance, which I have been using for several years, winter and summer.

My bottom packing, with an entrance ⅞x14 in., keeps the hive warmer inside than a Phillips bottom packing with four ⅜ in. holes for entrance (of course this means in cold weather).

I once lived upstairs in an apartment flat, over stores, and the hall door, the top of which was several feet below the floor upstairs, might be entirely open (on a cold day) and the cooling effect upstairs would be hardly noticed; but if you are living downstairs and the front door is open, you notice the cold wind before the door is entirely open.

When the bees are within a few inches of the entrance, and the wind blows in at the entrance, it worries the bees, and a bottom packing below the entrance is not as good as a hive setting on the warm ground, and a small entrance (four ⅜ holes) keeps the moisture in the hive, unless the moisture gets out elsewhere.

My bees, according to a thermometer test, with the bottom packing above the entrance, with an entrance ⅞x14 in., are warmer than with a bottom packing below the entrance and a hole ⅜x2 in., and moisture never condenses inside the hive. With a glass top you can always see if there is moisture inside the glass.

It would take me 15 minutes to tell you one-half of the advantages of a glass top, but I will mention a couple of them:

First. You can see the bees and the size of the cluster (it is smaller in cold weather).

Second. With a thermometer you can tell when brood rearing commences in the spring and when it ceases in the fall, without breaking the seal.

Third. I can feed my bees through a hole without breaking the seal, but this article is not intended to describe the advantages of a glass top.

My glass tops are made with the glass flush on one side for summer, and I reverse in winter, leaving one inch space over the frames, and the cushions make the glass so warm that you can see the inside of the cluster and see the bees crawling around and over each other in a cold day and a ring of bees from 1 to 2 inches thick packed tight, outside ones quiet and inside ones quite lively and scattered.

The last time I looked, the inside thermometer was 64 degrees and the air outside of the cluster (in the hive) was 42 degrees.

The inside bees are exercising to warm the hive. The outside bees are quiet, but move a little.

The colder the weather and the less protection, and the smaller the cluster, the warmer the inside of the cluster becomes, and sometimes it gets so warm the queen commences to lay, and if the spring is late the bees all die just because they have not enough protection.

A one-piece cover is sure to warp enough to break the seal.

A glass cover never warps.

It is much better to have the moisture diffuse through a good-sized entrance (⅞x8 in. is small enough under a Fowler bottom packing) than to put a sponge on the top of the bees to collect the moisture, which destroys the insulation.

E. G. Carr, our smiling New Jersey bee inspector, a few years ago called my bee inventions "New-fangled traps," but he has not seen my glass top yet.

The bottom packing is made of any old hive or super, leaving an opening ¾x18¼ inches on each side of packing for bees to go up or down.

The wind does not blow on the bees, in fact I think the bees do not know when the wind blows.

Just try a glass top covered with a feather pillow (pillow covered with a deep telescope cover), using three thermometers, one over cluster, one in corner over air, and one outdoors.

New Jersey.

SETTING THE PUBLIC RIGHT

Suggestions About Overcoming Suspicion About Honey

By E. S. Miles

There are several questions so old, so common, so often discussed, that one hesitates to undertake to say anything on them. One of these is the common ignorance regarding the candying of honey, and how to deal with it. I do not hope to contribute much to the proper way to meet this ignorance, but would like to write a little account of a recent visit to Kansas City.

A brother-in-law, who lives there, retails our honey at that place. Among his methods is one of going to the city market once or twice a week. While there, I went down to the market two or three times with him, and found it a very interesting place.

For the benefit of readers who may be unfamiliar with city markets, I will say that the Kansas City market is a city square, where farmers, market gardeners, beekeepers, or almost anybody, can come, at any time, and by paying a very small fee may use a little space to display and sell their produce. It is needless to say that, at such a place, one sees all kinds of people. There will be found, on all nice days, from one to three people selling honey, most of them beekeepers, or employed to sell for them. I was considerably surprised to find the amount of suspicion that still exists against extracted honey, and the candying seemed to be one of the chief causes. I saw one man, in particular, who had purchased a jar of honey, come back to the seller almost too "mad" to talk, and state most emphatically, that **he** knew that pure honey doesn't "get that way." Then I met a good many who thought the honey put up by the bottlers and wholesale grocers was "fixed up" stuff, or, in other words, adulterated. Practically none failed to show plainly by their manner, that the question of purity was uppermost in their mind. From some few remarks I overheard, I was led to the conclusion that this suspicion was fostered considerably by the beekeepers themselves and their representatives on the market. I noticed, with much regret, as no doubt many others have also, that many small dealers and merchants seem to think that they cannot succeed without sometimes departing from the truth in describing their goods, or in talking about their competitors. I saw, with regret, that the honey salesmen had fallen into the same custom. There is enough, and more than enough suspicion against honey, without beekeepers themselves helping to foster it.

Instead of trying to combat the idea that honey is largely adulterated honey salesmen often agree with the prospective customer in his suspicions, as to the honey of others, but assure him most earnestly that here is the place to get "the real stuff."

Now I believe this to be a very shortsighted policy, as all suspicion against honey must inevitably react against its sale.

As to a remedy: there probably is no panacea, but for those who read the journals, we might put in occasionally a word of warning.

My own personal course, in the little retailing I do, is to allow the prospective customer to express himself, watching for a chance to say something that may interest him, or get him to ask me something which may give me the chance to turn the conversation without directly contradicting him, when I try to have him recall that this is a large country, and that honey is now produced in many varied localities, and naturally there are many different kinds of honey, compared to a few years ago, and that many people forget this when they see honey that is strange to them, having heard so much about adulterated honey, it is quite natural to think it adulterated. I call their attention to the pure food laws which most people have heard of, to the fact that it is a clear violation of the law to misbrand foodstuffs, and that anyone who puts out honey branded "Pure Honey" that is not pure, stands an excellent chance of having a visit from the pure food inspectors. Usually this will have the proper effect with people of reasonably open mind and, of course, there are some who only wish to criticise, apparently. If there are any who read these lines who are ever tempted

to cater to a prospective customer's suspicion against honey in order to make a sale, I say emphatically, don't do it. Better lose a sale, in my opinion, for suspicion against honey has hurt the sale more than anything else, unless we except ignorance of its real food value.

Another thing I found more of at the Kansas City market than anywhere I have been, was the belief that honey was being produced by feeding sugar.

One man there offered to take me out to where, as he said, there was an outfit that were doing this, claiming they had shipped comb honey so produced, by the carload. I cannot believe this possible, basing my doubts on my own little experience producing comb honey, in which I finished up sections by feeding back extracted honey. But, seemingly intelligent beemen at Kansas City seemed to believe it could be done, and many other people certainly believe it is being done. I greatly regretted that I could not stay long enough to go out and see what foundation there was for the report. I believe that in these two things the honey producers have a profitable field for an educational campaign through organized advertising. Suspicion is quite frequently the result of ignorance and the common run of people are most woefully ignorant about bees and honey.

Iowa.

BEES IN QUEBEC AND ROMAN LAW

By Frank D. Genest, B. C. L.

Unlike the majority of the Provinces of Canada which follow the laws of England for the most part, Quebec law is derived from the old French law prevailing in France before the Revolution. This law in turn is derived from Roman law, which, during the reign of Justinian, in 534 A. D., had been reduced o concise principles. These principles were put in writing and embodied in the famous Institutes of Justinian. The laws relative to bees now applying in the Province of Quebec have been taken from these Institutes of Justinian, the compilers of the Quebec Code wisely recognizing that in matters of this kind, the Roman jurists were supreme.

Apparently during this epoch in Rome, many citizens were interested in bees, for the law is stated in no uncertain terms. In Book 2, title 1, section 13 of the Institutes of Justinian, we find the following words of wisdom:

"Bees are wild by nature. Therefore, bees that swarm upon your tree, until you have hived them, are no more considered to be your property than the birds which build their nests upon your trees; so if any one else hives them, he also becomes their owner. Any one, too, is at liberty to take the honeycombs the bees have made. But, of course, if, before anything has been taken, you see any one entering on your land, you have a right to prevent his entering. A swarm which has flown from your hive is still considered yours as long as it is in your sight and may easily be pursued; otherwise, it becomes the property of the first person that takes it."

The modern commentator of the edition of the Institutes containing the above, has the following note:

"It is said that the owner of the land, if he wished to secure the bees for himself, must prevent any one entering integra re; because if the bees are once taken, they belong to the person who takes them, although the owner of the land may have an action against the person entering against his will."

Analyzing this section, let us take the case of Gaius, who is the owner of a beautiful apple orchard hard by the Appian Way. Gaius had long desired to possess several hives of bees, but owing to unwise speculations in the Roman stock exchange, he found himself unable to raise the necessary number of sesterces with which to purchase even the nucleus of his hives.

One sunny day, whilst Gaius is strolling about his orchard bewailing the fact that his financial condition prevents him from placing a row of neat looking hives in a corner of the orchard, he sees his neighbor, Titius, a rascally fellow at best, in the act of placing a box over a swarm of wild bees which had settled in a nearby tree.

Wrath, sudden and violent, takes possession of Gaius. Girding up his powerful loins, he hastens up and exclaims, angrily: "Ho, there, Titius, lowly plebeian, what means this dastardly theft of my bees? Unhand those honeyed insects, else I will hie thee before the magistrate at Rome and have thee sentenced to three years in the galley ships."

Naturally, one would expect poor Titius to quail with fear at this dire threat; but nothing of the sort, no, indeed- Coolly placing the box of imprisoned bees on the ground, Titius speaks as follows: "Bunk, my dear Gaius, not to mention piffle of the flimsiest nature! You make a noise by means of your tongue, but you say nothing. Did you but spend your time perfecting yourself in the laws of our great Empire instead of enriching the Roman bucket shops, you would know that in thus taking possession of these insects, I am fully within my rights as a Roman citizen. Read well the Institutes of our great Emperor, Justinian, and be a wiser, withal a sadder man. Vale!"

So saying, Titius picks up the captured bees and walks out of the orchard, registering unconcern, leaving Gaius too bewildered to speak. Regaining his senses, however, Gaius rushes back to the house and feverishly searches through the Institutes, where, to his intense chagrin, he finds section 13 as outlined above.

Now if Gaius had not been the idle, dreaming fellow he was, he would have kept his eyes open and seen Titius in time to prevent him from entering the orchard. In this event, he no doubt would have also perceived the swarm of wild bees sunning themselves in his tree. However, a lesson is a lesson, and after thoroughly mastering the details of section 13, he resolved to put one, if not several, over on the clever Titius.

He took to hanging about in the vicinity of Titius' estate. Nothing happened for three or four days, but finally his patience was rewarded. The original swarm captured by Titius suddenly left the hive and started zigzagging down the road with Gaius in hot pursuit. After an hour's chase, the itinerant swarm was captured for the second time and placed in his orchard by the now happy Gaius. Next day, our hero meeting Titius on the Appian Way, was in a position to give him the merry ha! ha!

I might adorn this little tale with the moth-eaten moral of the man who laughed best, though he came in last. Instead of this, I will quote the modern law relative to bees as set forth in the Quebec Civil Code. Article 428 says:

"Bees living in a state of freedom are the property of the person discovering them, whether or not he be proprietor of the land on which they have established themselves.

"Whenever a swarm of bees leaves a hive, the proprietor may reclaim them, so long as he can prove his right of property therein, and he is entitled to take possession of them at any place on which they may settle, even if such place be on the land of another person; provided, however, that he notify the proprietor of such land and compensate him for all damages, and unless the swarm settles in a hive which is already occupied, in which case the proprietor loses all right of property in such swarm.

"If the proprietor of a swarm ot bees declines to follow such swarm, and another person undertakes the pursuit, such other person is substituted in the rights of the proprietor, and every swarm which is not followed becomes the property of the proprietor of the land on which it settles, without regard to the place from which it came.

"Any unpursued swarm which lodges on any property whatsoever, without settling thereon, may be secured by the first comer, unless the proprietor of the land objects."

Reading this article carefully we find some change from the Roman law. To revert to the case of our friend Gaius, had he been governed by this article of the Quebec Civil Code, he would not have had the laugh on Titius the day after he captured the swarm of wild bees. Indeed, Titius, finding his bees gone, would naturally have suspected that the Ethiopian in the woodpile was Gaius. He would then have marched over to his enemy's house, in all probability accompanied by a Roman cop, and taken the bees by force, relying on the second paragraph of article 428, Quebec Civil Code. As the Roman law stood, however, I have every reason to believe that Titius was powerless, and could only gnash his teeth in impotent rage.

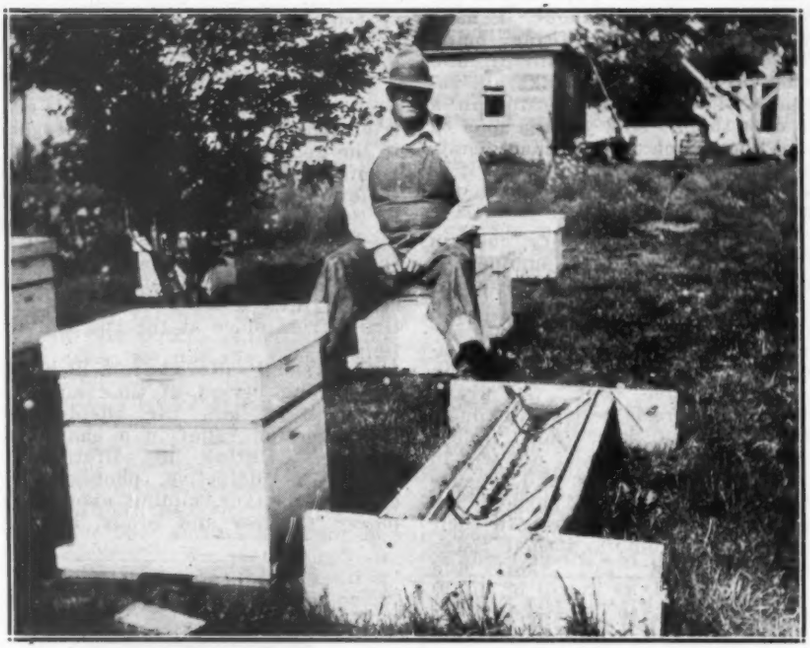
Although legal actions based on article 428 are few and far between, it would appear that this is due to

the good sense and peaceful nature of beekeepers in general, rather than to the "air-tightness" of the Quebec law.

Quebec, Canada.

A PRACTICAL WATERING DEVICE

It is important that a plentiful supply of fresh water be always within reach of the bees during active brood rearing. Many plans for supplying the water without danger of drowning the bees have been published. On a recent visit to the apiary of Newman I. Lyle, who is beekeeping specialist with the Extension Department of the Iowa State College, the associate editor found what seemed to him to be a modification of an old plan. Mr. Allen Hedges looks after the Lyle apiary, since Mr. Lyle is kept in the field by his work. Hedges hit on the plan of making a float of common building lath fastened together with strips of leather or rubber. The lath are left just far enough apart to prevent the bees from falling between them, and at the same time to permit them to drop down readily as the water is removed. The first picture shows a common watering trough filled with water and with the float in place. The second picture shows the bees watering at a trough which is nearly empty. It will be seen that the float adapts itself readily to the falling water, thus permitting the bees to drink safely whether the trough be full or nearly empty. Hedges is the big fellow sitting on the hive and watching the bees.



The bees water here till trough is empty, without drowning.

AN ANCIENT WRITER'S INSTRUCTION

The Apiary, the Bee Garden and Seats for the Hives

By Charles Butler (1634)

For your Bee-garden, first choose some Plat nigh your home, that the Bees may be in sight and hearing; because of swarming, fighting, or other sudden hap, wherein they may need your present help. While the stalls are few, your Garden of Herbs and Flowers will serv. But when they are grown to a sufficient number, they require a square green Plat, fitted for the purpose.

See it be safe and surely fenced, not only from all Cattel (which, if they break in, may quickly spoil both the Bees and themselves) and specially from Swine (which, by rubbing against the hives, and tearing the hackles (straw covers) in a wantonnes, are most apt to overthrow the stalls), but also from the violence of the windes; that when the Bees come laden and weary home, they settle qietly.

The north fence of your Garden should be close and high, that the cold winde of that coast (which in the Spring would be as apt to kill the Bees as to cast them doun in the setling) may be altogether kept from them; and therefore, if it may be, set your Bees on the Sout side of your hous.

The East fence also would be good and hig, to keep from the Bees as wel the sun as the winde. For the sun rising doth oft-times til (draw) them forth, when the ayer is colder than they can endure; and the East winde being cold and sharp is very unkinde for them.

But in no wise let the place be shadowed from the Sout sun: for that doth not only dry the hives, and releeve the Bees in the Winter and Spring; but also causeth them to swarm in Summer; if it be not extreme hot and drye.

Nor yet from the Sun-setting; because in calm and pleasant wether the Bees will be in the field after the Sun is doun, even as long as they can there see; and if when they return, they finde it dark at home, many of them (their sight being but dim) fall short or wide: with flying to and fro till they be weary, at length yeelde to the colde dew.

Otherwise let the fences be as good against the Sout and West windes also, as may be; for although they be not so cold and bitter as the other; yet ar they no les violent, and more frequent; so that they also do much harm, specially in the Spring. And therefore, if at that time of the year, in rough and boistrous windes, you finde that the Garden fences dose not sufficiently gard and defend them; then is it good to set up wixed or lined hurdles, or som other skreene betweene them and the wether. For though they can shift abroad in the strongest windes, as a ship that hath Sea-room, yet ar they easily overthrown at the Hive, as a ship is soon wrecked at the Haven.

A hous, or wall, or good Pale, is fittest for the North fence; and a quick-set-hedg for any of the other three: it may serv also for the first, specially if it be thik.

Watering trough at Lyle apiary.

That the place be sweete, not annoyed with stinking savour, I have known a stall in the Spring, being sufficiently provided of Honni, and having bred yung, to forsake all, because of Poultry that roosted in a tree over them. And yet the smel of urine doeth not offend them; nay, they will be very busy where it is shed: it is thought they use it for Physik.

That it be neither very cold in Winter, nor very hot in summer. A bare flour is naught in both seasons; becaus in Winter it is over-colde, and by that means qickly chilleth the Bees that light upon it; and in Summer it causeth them to lye forth troogh excessive heat. A grassi ground therefore is best at all times: but let it be kept nott (close cropped) in Summer, and not wet in Winter: for long gras and weedes about the Hive, do but harbour the Bees' enimies, and hinder both their passage in and out, and their rising again when they fall short: and water if it stand, as it will be offensive to yourself, so it is dangerous to your Bees, for chilling and drouning them. And as the parts about the Hives ar to be kept nott and bare, so ar other places also, where the swarms dooe use to play and pitch (whether within or without the Garden) to be freed likewise from long grass and weedes; much more from Beans, Peas, Hemp, and such big things. For the young weak Nymphs falling in those shady places, except the wether be warm and drye, ar in danger to be chilled before they can rise again. For which caus the swarms dooe usually refuse to stay and settle about such places: and then of windy or cloudy wether suffer them not to goe further, they must either return home or light upon some other Hives; where, without your present skil and diligence, they are like to be all lost.

That it be conveniently beset with trees and bushes fit to receive the swarms (as Plum-trees, Apple-trees, Filberds, Hazels, Thorns, &c.) chiefly in the East and Sout sides of the fences, and not too neere the stalls. Which they wil the more delight to light upon, if convenient boughs hanging out alone from the bodies, the twigs below standing in their way be pruned; and the weeds and gras underneath be cut away close to the ground, that they may have free scope and liberti, in the open aier, to play around about these Pitching-places, not interrupted with other Trees or high Hedges. Although, if they be willing to stay, they will not refuse a ded hedg, aLavender Border or the like, or sometime the bare ground. For want of Trees and Bushes, som have stuck up green Boughs, and the Bees have pitched upon them.

DEATH OF DR. BONNEY

Doctor A. F. Bonney, of Buck Grove, Iowa, is dead. Such is the word coming to this office. He passed away on the evening of June 30, after intense suffering from uremic poisoning. He had been in a serious condition for some time, and recently visited hospitals at Rochester, Minn., and Denison, Iowa, in search of relief.

Doctor Bonney was well known to beekeepers generally through his contributions to the bee magazines and to the general farm press. A charter member of the Iowa Beekeepers' Association, he was active in the affairs of the organization until the time of his death. He served as a member of the Board of Directors early in the history of the Association and later served three terms as President, retiring from office at the last convention.

Our friend suffered from ill health for a long period of time and this condition led him far afield in an effort to find relief in a change of climate. During his lifetime he served as detective, photographer, chemist, assayer, mining expert, explorer, lecturer and editor, in addition to the practice of his profession as doctor of medicine. During his later years he became interested in bees, and although never an extensive beekeeper, he kept 40 or 50 colonies near his home which were the source of great interest and study.

Dr. A. F. Bonney.

In the old days in the Southwest, he met many adventures and often a group of friends would take delight in listening to tales of thrilling experiences, while visiting in hotel lobby between sessions of the bee meetings. A man of varied interests and experiences, he was an unique character, and will be greatly missed. There is still an article from his pen in this number.—F. C. P.

ALEXANDER, THE WIZARD

By John Protheroe

Mr. Alexander originated a number of practices that make the common garden variety of beekeeper gasp with astonishment. He advises us in the most ordinary manner to do the most extraordinary things. If it wasn't Alexander who told us we should snort with incredulity at his small percentage of failures. My own belief is that it was the magic Alexander touch that carried through successfully operations that in other hands would show a large proportion of failures. This touch is a gift owned by certain artists, surgeons, florists, mechanics, and others, and it is denied to their fellows.

When Alexander tells us startling things, we wonder and we envy his wizard touch.

"Go to the strong colony you wish to set the weak colony over, and get a frame of brood with adhering bees, being sure not to take their queen; then put the queen of the weak colony on this comb with the strange bees, and put it into the weak colony; leave them in this way for about half a day, then set them on top of the strong colony from which you got the brood with a queen excluder between. The whole thing should be done as quietly as possible so that neither colony hardly realizes that it has been touched." He goes on to say that hardly one queen in a hundred will be lost. Now, when I take a year-old queen from a colony and put her on a frame of bees from a different hive, she is chased over the comb, tackled, and balled. That is what happens. I haven't got the Alexander touch. If I manage it without touching her with my fingers, the result is the same. Does the Alexander theory rest on the fact that the comb of strange bees is itself "out of its element" and under such conditions will refrain from attacking the queen? I have often tried instantaneous introduction by placing a weak, newly-hatched virgin, just released from the cell, on a frame of bees from a colony that has been queenless for a day, relying on a sense of forbearance towards a helpless infant. The poor infant has very often to be promptly rescued. In these cases, too, I am careful not to handle the virgin.

In the simpler Alexander method of quietly setting the weak hive, untouched, above the strong one, I have had a very limited success. As a method for uniting in spring it is excellent; here in Virginia it should be done in February, as on February 11, last, when at 2 p. m. it was over 70 in the shade. Look through your hives in the afternoon, and then when it is cooling down after sunset and the clusters are reforming, perform the transposition as quietly as possible. I scrape and vaseline the edges of those which are to be handled, so as to make it as smooth an operation as possible. If 2 or 3 cold days follow you may claim that it has been done as well as anyone could do it who hasn't got the Alexander touch. There is no fighting among the rank and file of the bees, but a month later four out of five of the queens in the top story have mysteriously disappeared. They have united into one colony, and, presumably, the bees from below have decided to abolish the lady upstairs. I have tried paper and excluder and both together. There is no great harm done. It is foolish policy to keep weak colonies as separate units just because you want to save their queens. Probably the queens are not worth saving. Where the principal honey flow is in May and June, beekeepeprs should steel themselves to perform this doubling up on a

wholesale scale. I would alter the old rhyme and make it read:

"One strong hive on May Day
Is worth a load of hay.
Two moderate hives in June
Aren't worth a plated spoon,"

Dr. Miller's saying that "Bees do nothing invariably" has become an apicultural proverb that is likely to survive as long as men keep bees, for it is an eternal truth. It is also most soothing; when something has gone wrong, it is, of course, due to that pesky variability. Yet it would be wrong to interpret this as "Bees are capricious." There are many given conditions to be realized before bees will behave in a certain way. We take it for granted that we know all and we proceed accordingly, but there must be many which are unknown to us; we ignore them, and failure follows. The Alexander touch consists in an instinctive feeling for these conditions.

"Another result from our experiments, so far as we have gone, is that we have never had a colony with two or more laying queens show any desire to swarm." Startling enough, but go on a little further: "In order to see if we could force one full colony to swarm last summer, we put fourteen good laying queens into it at one time, and in about two weeks we examined it and found the fourteen queens we had put in two weeks before, and their own queen all in harmony together, with nearly every cell in their combs containing brood. Sometimes we would take three or four queens from it to use in other colonies, and occasionally we put in five or six at a time, and none were ever balled or stung. In fact, there was no queen injured in any way in that hive during the season. I have seen three or four on the same side of a comb crawling along among the bees, and whenever they would touch each other they would start quickly in an opposite direction." And so, gentle reader, if you wish to prevent swarming, try fourteen queens to a hive. But, may be, you are not an Alexander.

Virginia.

(You are not the only one who cannot succeed with the Alexander feats, for neither can we. The safe thing for a beginner to do is to follow the well-known instincts of the bees as described in our textbooks. Some things that may succeed 10 times in succession will probably fail a hundred times afterwards. Keep on the safe side.—Editor.)

FALL PASTURE FOR BEES

By L. H. Cobb

I have never considered it worth while to make much attempt to grow pasture for bees. I do believe it pays to get sweet clover well established, and if we can manage it so we can have varieties of this plant that will prolong the season, so much the better, and in a location where there is a chance for alsike to spread into wet soil suited to it and run wild, I think some seed judiciously distributed will pay well enough, but the one pasture which I know has paid me well has been buckwheat. It is not the amount of honey that I have secured from this source that made it profitable, but the fact that it keeps blooming until frost and insures the bees rearing brood right up to the last. So much of our success any season depends on the number of strong young bees that go into winter quarters the previous year that anything we can do to help along is well worth while.

Buckwheat makes a good orchard cover crop, and this is a place that nearly every farm affords. Then we can sow the potato patch to buckwheat after we dig the potatoes if we dig and market at once, and we can seed to buckwheat and leave the potatoes in the ground if we so desire, for the buckwheat will help to prevent the potatoes being injured by the heat or moisture, shading the soil and absorbing the surplus water.

We have bees and we have considerable orchard. We plan this year to sow buckwheat for a cover crop in July. I have sown buckwheat with success as a late bee pasture as late as the first of September in Oklahoma, and we intend to sow some this fall in August, when we seed the alfalfa, using it as a nurse crop on a small field as an experiment, sowing thinly.

Buckwheat grows rapidly and is blooming very soon after it starts. By seeding thickly, late, we get a good pasture that comes just when we need it worst. When seeding earlier I use about a half bushel to the acre, but when seeding late I double the amount. When seeding as a cover crop 15 to 25 pounds is enough. Buckwheat does not throw a heavy shade, and its stems and foliage will not settle down and smother any plant when killed by frost, but will yet serve a good purpose as a winter protection. It can be seeded on any ground that is not needed for active growing purposes late in the season, and it will loosen and help build up the soil. At the same time it will produce bee pasture and seed for poultry. Even my very late sowing has produced seed enough to keep the hens busy for some time harvesting it. We can harvest the early crop or let the flock harvest it, as we choose. The late crop will hardly ripen, but hens like the green seeds.

Kansas.

New League Officers

The new officers recently chosen for the Honey Producers' League are:

President—H. F. Wilson, Madison, Wis.

Vice President—Colin P. Campbell of Michigan.

Member of Executive Committee—F. B. Paddock, of Ames, Iowa.

We commend these men to the confidence of the beekeepers. They have no axe to grind, and will give their best efforts to advance the interests of the honey-producing industry. The retiring officers have worked under great difficulties and have done much for beekeeping. They are entitled to our appreciation for their efforts. They have laid the foundation for an effective organization and it is now time for everybody to get behind the new officers and boost for a bigger, better and more effective National.

Bee Culture Leads to New Haitian Industry

Great oaks may from little acorns grow, but no one ever realized what would be the outcome of the introduction into Haiti, in 1730, of logwood, whose blossoms would yield a superior nectar for bees. While Campeche honey is today one of the choice products of that country, Consul Woods, of Cape Haitien, in a statement to the Department of Commerce, says that the wood has spread throughout the land and is shipped over the world from all the principal ports of Haiti. Honey is now a minor issue compared to the exportation of logwood, which has become one of the leading industries of Haiti.

BEEKEEPERS BY THE WAY

A Pointer from Michigan

Every few months the Michigan Department of Agriculture gets out a little bulletin entitled "Tips and Pointers." Several of these publications relating to beekeeping have come to our table, and always the pointers are practical and timely. Most of these Michigan pointers on beekeeping have been written by B. F. Kindig, of Lansing, who is in charge of bee inspection. He not only gives the beekeepers timely pointers on the production and marketing of honey, but occasionally he gives the public some pointers on the quality of Michigan honey, which he modestly admits is the best in the world, and upon the wonderful possibilities of production in that State.

Michigan's Inspector of Apiaries.

PHILIP H. ELWOOD

By Lewis J. Elwood

Philip H. Elwood, one of the pioneer beekeepers, died May 10, at the age of 75. He was born on a farm near Fort Plain, N. Y., and spent practically all his life in that section. He was educated in the local school and at Cazenovia Seminary, where he was considered an unusually good scholar. He taught several terms in his home and nearby schools. Later he went to Michigan and became principal of a school in Grand Blanc. Because of failing health he was obliged to give up teaching and seek an outdoor occupation. He chose beekeeping, and started in this business back in the days of Moses Quinby, who lived at St. Johnsville, but 8 miles from Mr. Elwood's home. This accounts for his adopting the Quinby hive, which he always used. He liked the deep combs and successfully produced comb honey with but one story in the brood chamber.

In 1870 he entered a 5-year partnership with Captain John E. Hetherington, after which he established a separate business near the village of Starkville, while Captain Hetherington continued at Cherry Valley, about 7 miles away. They were always the best of friends and frequently visited back and forth.

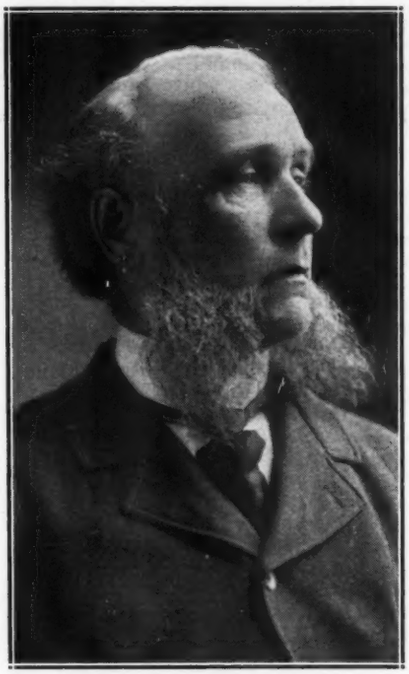
For several years Mr. Elwood kept over 1,200 colonies, running all to comb honey. He kept them in outyards of about 75 colonies, bringing them home in the fall and wintering in cellars. About the year 1905 his bees were struck with a very serious epidemic of European foulbrood, which reduced their numbers to about 300 colonies. But for the fact that he adopted the now popular treatment of killing the queen at the first indication of the disease, practically all his bees would have died. After getting his number back to 600 he maintained about that number till the time of his death.

Mr. Elwood was for several years president of the North American Beekeepers' Association and of the New York State Beekeepers' Association. When the American Association became divided into the Canadian Beekeepers' Association and the National Beekeepers' Association he was made president and director of the latter.

He used to be a frequent contributor to the beekeeping magazines, though of late years he had written but little for them. He was a conservative writer and the product of his pen always carried the weight of experience.

He was a loyal member of the church and a staunch supporter of whatever he thought would build character and uplift the community. He took an especial interest in good roads and good schools. His greatest interest, aside from his family, was always in bees and beekeeping.

Besides his wife, he leaves two daughters, Mary Louise, a trained nurse; Alice Lucille, a high school teacher, and three sons, Everette S., who is managing director of the National Board of Medical Examiners; Philip H., Jr., who is a professor of landscape architecture at the Ohio State University, and Lewis J., who is continuing his father's business of beekeeping.



The late P. H. Elwood.

THE HUBER LETTERS

Ventilation

(Continued from July)

Lausanne, June 14, 1829.

Dear Eliza:

When the prophet-king urged us to look at the ant and the bee, he gave us advice of high wisdom.

The mother cannot always be there. Among the bees, as you perceived, her presence, so necessary at this first epoch, is marvelously filled by the worker, who watches the young larva until the time when it may go about and take care of itself. When the good nurse is compelled to go elsewhere, her place is always filled and one may say that the cradle of the young bee is never abandoned. The cleanliness of the hive is another point which is strongly recommended to the bees. I suspect that the purpose of Nature in this occasion is to preserve the purity and therefore the salubrity of the air in the hives.

Now that you have a hive that you can watch and can see for yourself, instead of telling you what I have seen, I will point out to you what you have to see which may interest you and instruct you.

Are you acquainted with the useful invention of ventilators? One can readily force air through all parts of any space. A door or an open window would not be sufficient to operate its renewal; for that purpose two opposite openings are needed. The ventilator, when applied in a window or in a hole of the wall, by allowing the air to enter or exit alternately produces, through this double play, the effect of two opposite openings. The air set in motion at the entrance of a hive penetrates within it necessarily; a stroke from the fan in your hand does not bring the air to your cheek any better than the motion of a ventilator brings the outside air to the inside of the hive to replace an equal volume of the inner air, and that operates the renewal.

You will surely ask me where that ventilator is found, when the ventilation of the hive and of the bees is at stake. Seek for it yourself and you will find it. It is not within the hive that it must be placed; neither is it within the door, the space of which, needed for the passage of the bees must not be obstructed; it will therefore be on the outside of the hive and opposite the entrance that it must be established and that you must look for it.

What do you see there, kind Eliza? Workers going about their affairs and going without stopping; you see nothing there reminding you of a ventilator; but let us look closer. Among these bees in action do you not notice some which appear stationary? It is upon the stand, in the part which juts out from the hive, that those bees are located. A very simple figure will give you a just idea of the manner in which they are ranged there, that is: c, supposed to be the center of the hive; a, b, its door; it is upon the imaginary lines which form the sides of this angle that the ventilating bees stand.

Try to perceive their wings. What are they doing with them, please? Tell me, if you can, their number and their shape, their direction, etc. You cannot do it. All this disappears and shows you only a shapeless little cloud around each bee; it is due to the extreme rapidity of their motion.

One can produce the same illusion by agitating rapidly a stick, one end of which is afire.

But how does it happen that so great a motion of their wings does not cause them to take flight? Look at their attitude, it will tell you better than my words could do it; their corslets draw very closely to the stand, the abdomen is away from it; their six legs, especially, appear to sink within the position; they are like so many anchors, with which they are fastened down.

The ventilating bees are far enough apart to be out of each other's way; I even believe that the going and coming bees avoid approaching them, so as not to be struck and confused by the beating wings.

Experience was to teach me whether the living ventilators had upon the hives as salutary an influence as those which we invent have upon the air of our apartments and the halls in which many people assemble daily. You divine the test which came to my mind and which proved conclusive.

The only question was to deprive a swarm, for a few moments, of its natural ventilators, by closing the hive. The result was asphyxy or ap-

parent death of the entire population; by restoring the air with the ventilators, the swarm was soon brought back to life.

The advice of the prophet-king showed us, in the behavior of the bees and of the ants, the example which we have to follow. The first childhood, cared for by us as with their young, all their needs foreseen and provided for; who knows but that the least fancies and the most tender caresses have been bestowed? The gentleness which I saw them lavish and use in all their motions would indicate it and would tend to avoid the unpleasant effects that contrary ways might have upon irritable beings; those inspired by kind Nature cannot cause any such inconveniences.

(To be Continued).

SOME BEE STORIES

By Hy. W. Sanders

The place was the living-room of the camp at Piru, in California, where M. H. Mendleson has maintained for thirty years one of the most famous apiaries in the United States. It has had varied fortunes, the years when a dry winter has cut off the flow from the mountain sages being all too frequent; but when the honey does come it is a revelation of the speed with which bees can gather the precious stuff when given a chance, and the famous years when the crop went into the tens, and once into the hundreds, of tons, gives encouragement to the veteran beekeeper. This year was one of the good ones, and a happy group of men and women helpers would meet after supper and swap stories as only beekeepers can.

"M. H." was this evening in a reminiscent vein, and from his 50 years of experience among the bees came forth stories of stings and swarms, of famous beekeepers, of inspectors and moves and seasons and of the wonders of the bees themselves.

"My first experience with bees was around the year 1870," said he, "and my father, who was a storekeeper in New York State, had gotten a couple of box hives for payment of a debt. He knew nothing about bees and gave them to me. I knew nothing either, but enquired among the neighbors, and some one told me to put boxes for the surplus honey on the sides of the hives, boring holes to admit the bees, and making the surplus apartments with only three sides, fitting closely against the hive for the fourth side. I did so, and in due course the bees filled them with honey. The problem then was to get the honey away from the bees. Well, my father had been in search of help among the immigrants who were coming to the country, and had secured a Frenchman and a German. (I recollect that they came to blows during work as a result of a quarrel over the Franco-German war). However, it was the German who offered his services. "I keep bees in Chermany," he said; so he was told to go to it. He first pried off the surplus boxes, and then inserted his fingers to break the combs and the bees crawled up his sleeves and stung him till he howled for help. All the family were at the windows of the house watching him, and laughing."

This anecdote led the way for another, this time from another member of the circle.

"You talk about fun connected with robbing bees," he said. "The most amusing incident that I have experienced was in Winnipeg, in Canada; by some chance a hive was left in a man's back yard all fall, and the householder, believing that honey was to be had, but not knowing how to get it, called in a friend. Neither of them knew anything about bees, but they approached the hive and started to monkey with it. It was fall, and robbing time, and of course the bees chased them off in double quick time. One of them then got the brilliant idea that water would keep the bees from stinging them. So his friend donned a raincoat and attacked the hive, while he played the garden hose upon him. The result may be imagined. The bees stung and drove off the amateur fireman, and the friend who was taking out combs. They then proceeded to sting everyone within a block or two till some one phoned for a beekeeper to come with a smoker and quiet them down and close the hive."

The next was a lady, who was there with her husband, and she told a tale of a beekeeper's wife's experience.

"One time," she said, "my husband was away and the bees were very cross; and as it was in the fall, we were getting in a load of coal. I was dismayed to see the teamster take his horses right through the yard and close to the hives, and felt sure that he would get stung. All went well, however, until he had nearly finished unloading the coal into the basement, and then he got a sting. He stuck to his job, however, and completed it and then came to the house to collect the money. Just as he arrived at my kitchen door he got a couple more stings, and he rushed into the kitchen, shut the door and began to swear. At first I was shocked at the things he said, and then the humor of the thing suddenly struck me and I could not help laughing at the figure he cut. He was stamping about the kitchen and saying the most extraordinary words that I had ever heard. The funny part about the thing was that every couple of minutes he would stop and apologize for swearing, and I would stop and apologize for laughing at him, and then we would both start again."

This gave Mr. Mendleson an opening for a story about his horses. Nowadays the fast work of the apiary is done with a Dodge car, but in the days that have gone he had horses that were unsurpassed in the district, and he still retains his love for them and likes to talk about them: "I had some fine horses," he said, "and I recollect one time that I was plowing a fireguard at the top end of the apiary with a splendid team of greys, and a man I had working for me was holding the plow. He was a fine fellow, and strong, too. Well—the team must have been stung, for suddenly they bolted right off through the beeyard, and we then had between 700 and 800 colonies. I held on to the lines and tried to hold them, but they took me with them. (I've had lots of runaways, but never let go of the lines once)—Well, the team went clear through the beeyard and down the canyon to the barn, and when we got there I found that my man had lifted and carried the plow all through the yard so that only two or three hives were upset, and not one was lost. We had quite a job picking stings out of ourselves and the horses, though."

Then the talk shifted to swarms and the places where swarms will go, and the experiences of beginners, and other things about swarms. One of the party related a tale of a beginner who had bought a hive of bees, which in the course of time swarmed. The bees clustered in a tree and their owner rushed into the house to get ready to hive them. He put on a veil and gloves and an overcoat and a few other things so that the bees would be sure not to sting him, and by the time he had finished his preparations the bees had disappeared. There were lamentations and references to textbooks, and the conclusion was reached that they must have absconded. The next day another swarm came out and clustered in the same place. Again there were elaborate preparations, and again by the time that they were completed the bees had gone. A third day and the same thing happened. On the fourth day the bees swarmed again, and this time the owner did not prepare at all, but watched them, and in a few minutes the swarm returned to the hive.

He had purchased a colony with a clipped queen.

"The prettiest sight I ever saw in connection with swarms," said "M. H." "was one time when 21 swarms all clustered together. It was at Ventura, and I had some bees along the avenue there. There were no trees except one elder bush about as thick as a man's wrist. The weather had been foggy and dull and the bees confined to their hives. Presently there came a bright day, and the twenty-one swarms emerged and all clustered on the one bush. It was the prettiest sight you ever saw, for it was like a lady's dress with a long train. I tried to get a photographer to come and get a picture of it, but the man was afraid of the bees and declined."

"Mr. Mendleson, what did you do with the swarms?" was the query of one of the group.

"I had all my hives ready," was the reply, "and counted the swarms as they came out. My eyes were better than they are now, and I searched the cluster for the queens. One by one, as I found them, I started the bees into one of the hives, and in a little over an hour had the entire 21 hived."

"What would you consider the most curious experience you have

had?" was the next question, and this brought forth the following:

"One time I hived a swarm and was carrying the hive containing it back to the yard, when another swarm came and alighted on my hat. I saw them circling in the air and I was afraid they would come and get mixed with the hive I was carrying. However, they stayed up, and then I suddenly felt a weight on my hat and realized that they were there. I stood still until they were clustered, and then walked very slowly and carefully to the apiary. Yes, sir! I carried that swarm to the apiary on my hat and crossed a stream over a single plank and climbed the fence as well!"

California.

LETTER FROM PALESTINE

By Ph. J. Baldensperger

Tiberias, Palestine,
Feb. 22, 1922.

Dear Mr. Dadant:

I have just been called by the silvery voice of the Muezzin who, as in all Moslem towns, calls the faithful at daybreak, for prayer. We are on a bee-visiting tour "from Dan to Bersheba," as the saying goes. From south of Jerusalem we ran up to the extreme north, about the lakes of Merom and Galilee, in one day. Of course such a trip of 200 kilometers (125 miles) is nothing for you Americans; but here, in Palestine, when on the same roads, some 35 years ago, it would have required 5 days on horseback, we consider this a progress. We—that is Mr. Livshitz, who visited you about two years ago and told me about your kindness and the bee knowledge he gathered there, my brother Emile, the Palestine beekeeper and I—are on a trip after bees. Not only bees, however, for in such a historical country, how can we pass by scenes and sights which have been of such importance in history; to say nothing of Jerusalem, where everyone knows how events have influenced the world, from the taking of it by the Hebrews, under command of David, a thousand years before our era to its recent capture by the Allies in 1917, without being greatly interested?

We found apiaries kept by modern Jewish settlers, in movable-frame hives, mostly American models, the standard Langstroth, the Dadant and the Baldensperger, which was introduced here by the brothers of the family in 1880. Benton had then prophesied that the B's would at some later period be acknowledged the fathers of beekeeping in Palestine. Well, movable-frame hives are scattered all over the country; but my brother Emile is the only remaining Baldensperger in Palestine, of the six members who were here once. He keeps his bees in Jaffa, in the beautiful orange groves, where bees suck the finest nectar from hundreds of thousands of orange trees, in March and April. Our example has been largely followed by the southern Jewish settlers, who flock into the orange groves with several hundred movable-frame hives from Ebron and all the other settlements of Philistia, to Jaffa. Some settlers in the mountains of Judah keep their apiaries there all the year around; while the Philistian beekeeper moves his on camel-back from Jaffa to the plains of Sharon, in May (when the orange blossom is over), to the Vitex agnus castus growing about the dry river beds; and a sort of acacia, of dwarf size which yields plenty of brownish honey, in June. Some go, in their wanderings, towards the mountains of Judah, in quest of thyme blossoms, during the month of July and a part of August; then the harvest is over and every one seeks a quiet refuge from the numerous hornets which are a pest in the Orient.

The bee of Palestine, the Holy Land bee, is of yellow race, but has been modified very likely for some thousand years by an original darker bee, which is still found in the extreme north of Syria or in Cilicia. No doubt the original home of the yellow bee was Cyprus, where it is still found in its purity, golden yellow, with the last rings of the abdomen blackish, and the beautiful gilt crescent at the back of the thorax, which I found also in the yellow bees of Morocco last year. I called that bee the Saharian bee to distinguish it from the North African.

The Palestine bee varies in two shades, bright yellow and grayish yellow, but both with a dark crescent. Near Baalbec, in the extreme north, along the Litany Valley, in the whole of Coele-Syria and about Damascus, the bees are grayish yellow, while towards the sea coast, about Bayrouth and Tripoli, they are of the brighter kind. But all over Syria and Palestine, owing to their numerous enemies, such as hornets, wasps, bee-eaters (the bird Merops apiaster), and others, the bees are of very aggressive character. The beekeepers never work at them without veils and gloves, and on more than one occasion I have been badly attacked, on my trip, whenever I handed my smoker over to a companion. They need a great deal of smoke before opening the hives; in fact, not before every bee is well filled with honey is it advisable to open a hive. We had quite a bit of work discovering the queen in a hive yesterday, as the queens slip out of the way very easily, especially when they are not over a year old; the matrons of two years are more quiet and clumsy, and this is about the time when they should be replaced by younger specimens.

Most of the beekepers I met in Palestine are beginners, at least in the north of Palestine, settlers who have come in from Europe, after the great war. The Philistina beekeepers are mostly from 10 to 30 years old.

Although I am a native of Palestine, I could not pass by the historic sights, which I had not seen for over 30 years, without emotion. Here is an apiary, with Mount Tabor in sight; shall I look at the Holy Mountain, or at the battlefield of Napoleon Bonaparte against the Turks, or at the battlefield of the movable-frame hives against the immemorial and immovable Palestine hive?

Again, in sight of the Horns of Hattin, above Siberias, where Guy de Lusignan, the last crusading king of Jerusalem, fought for his dwindling kingdom, in 1187, against the victorious Saladin, I have heard an enthusiastic young Judith expounding her love of the country of her ancestors, and endeavoring to hear as much as possible of the science of beekeeping required for the management of the modern hives.

Many young women have left their northern homes, driven by persecution, especially from Russia and adjoining countries, have left their city customs, to take up the spade, or the smoker, and live a wholly new life, with enthusiasm and plenty of courage. I do not mean by this that the male population is not equally full of hope and desire to find work and peace; they are eagerly transferring bees from the cylindrical clay to the frame hive, planting trees and honey plants. In the near future, if these new settlers know how to behave, without troubling the peace of their Christian or Moslem neighbors, who have lived in the country during the 2,000 years of the Jews' absence, I doubt not that Palestine will flourish again for the benefit of many nations.

BEEYARD NOTES

By Charles Reynders

I have at one time or another felt impelled to offer through your columns advice upon the matter of those keeping bees and in examinations unable to see without glasses and then being annoyed by perspiration running down upon the glasses, thus being most seriously baffled. Such was the case with me until I read something touching upon this, in the Rural New Yorker, which I will state as follows:

I have a supply of absorbent cotton such as comes in layers (as I suppose all now in the market does); out of it I cut a strip long enough to reach over the forehead and temples and tie this around my head. The perspiration all runs into the strip of cotton and the glasses remain clean; while this at times is rather warm, it is of the greatest relief as compared with finding oneself hopelessly baffled within a few minutes. Without such means for relief, I would have found myself compelled to give up beekeeping. The cotton can be dried again and again.

Here is another point I offer: Some time ago I happened to notice a person having a lot of keys and keeping them with a device to be found in most hardware stores. It is secured over the upper belt of pants, in front, near where suspenders are buttoned on. It occurred to me that the article mentioned would be a good thing to adopt for holding the hive tool, and I found this such a success that I am never without it in my preparations for bee work. I had a hole drilled into the Root hive tool near the curved end, and thus secured to the tool a piece of safety chain, also obtainable at hardware stores generally.

The other end of the chain is secured to the spring-clamp key-holding device. Of course nothing is as indispensable as something in the way of a hive tool, and usually it is common to displace it—but using what I have described, it is always at hand, and thus much annoyance is done away with. I have become so accustomed to the use of it that when there was but a short job to be done, and therefore not worth while adjusting the hive tool with chain, etc., I was sure to mislay or lose the tool, from the fact that I would unconsciously let it drop down into the grass and thus have trouble in finding it; as it is, all I have to do is to grab for the chain dangling down at my side, and I have the hive tool in my hand.

Another thing: When making up nuclei, it is most always advised to shut up the entrance to hive with grass. This has always been obnoxious to me—in part because, where I am there is no soft grass; it is all stalky or stiff; besides that, there is the feature of stuffing it so as to be just right as to compactness; but at best, this grass-stuffing business is detested by me, as one who loves exactitude in everything. Several years ago there was a description of an anti-robbing device, about the same thing as the "Front Guard for Hives," as illustrated on page 28, left-hand column of the Lewis catalog of this year, only what I have has a slat running down the center, near the lower end whereof there is a hole that can be closed up with a cork stopper. Now to stop robbing, just place the device at entrance of hive with hole open; the bees within have a nice vestibule to deport in, assemble for any onslaughts, while the intending robbers have but that small hole through which to enter, whereat I have always found they are checkmated.

Now, this same thing with cork inserted. I use in making up nuclei. There is abundant ventilation, and the bees can be kept in confinement exactly as long as desired. My way in this is "A No. 1," judging by results. There is nothing in beekeeping that I succeed any better in than in the makeup of nuclei. I would bank all I am worth in turning all beekeepers into anti-grass stuffers.

Pennsylvania.

Fastening Winter-case Corners

Maynard Knapp, a 15-year-old boy of Grand Rapids, Mich., who, by the way,. is apparently a wide-awake chap, writes to suggest that the best way to fasten the corners of winter-cases is by means of ordinary strap hinges, with loose key pins at the joints. He states that after unsatisfactory experience with hooks and eyes, he hit on the plan of using the hinges. Two hinges are used at each corner, about 6 inches from both top and bottom. In all 8 hinges are required for a complete case. By removing the pin from the hinge joint the case is easily taken down and can be stored in the flat. We wonder why someone has not thought of this before, or whether others have tried it and failed to mention the fact.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

Candy—Queen Rearing

1. How is candy made for queen cages? Describe in full.

2. Would I succeed in rearing my own queens by the following method: Put two frames of brood without their queen, in a 2-frame nucleus? Would they start and finish about 10 to 12 cells out of those two frames, or must I give them cells?

3. Could I succeed in requeening the rest of my colonies by giving them each a ripe queeen cell and kill the old queen a day or two before giving the cell to the queenless hive TEXAS.

Answers.—1. Candy for cages is usually made by mixing powdered sugar with heated honey until it will take no more sugar. But the honey must be boiled for thirty minutes, according to postal regulations, which are intended to prevent the spread of disease. However, honey which has been heated is not very good food for bees unless it has been kept from burning. Another way to make candy, given by Pellett's Practical Queen Rearing, is as follows: Use 12 pounds of granulated sugar 1½ pounds candymakers' glucose, 1¼ quarts of water and one-third teaspoonful cream of tartar. The cream of tartar and glucose are added to the water and heated in a kettle. The sugar is added after the mixture comes to a boil, stirring continually. After the sugar is all dissolved, stop stirring and let it heat to 258 degrees. Then remove from the fire and let cool to 120 degrees and stir again until it looks like a paste, when it is ready for use.

2. The important thing about rearing queens is to have plenty of young bees to take care of the cells and plenty of honey for them to use. Unless you add more bees with your two combs than the combs will carry, you will run the risk of a very poor success. Better rear your queens in a full colony, taking the queen away with some hatching brood. As to the number of cells which they will rear, that is problematical.

3. Yes, if you kill the queen 24 hours at least before introducing a queen cell, you should succeed in requeening. The rule is to wait till the 9th day after starting cell rearing, kill the queen, and on the tenth day insert the queen cell.

No Brood

In my apiary I have three stands of bees that have produced a good strong swarm of bees each this spring, but at present they have not a single cell of brood. What is the cause, and what the remedy? IOWA.

Answer. I believe the answer is easy. Your bees swarmed about 3 weeks ago, with the old queen. The young queen has hatched but was not yet mated when you examined the hives. It takes from 15 to 25 days, sometimes a little longer, before the young queen is fertilized and laying, from the time the swarm emerged. If you do not find any brood in the hive 25 days after the swarm issued, you will find it advisable to give your colony some young brood, so they may rear another queen, in case their young queen has been lost in her mating flight. In fact, it is as well to give them brood even a little earlier, so they may not lose any time. In your present case, it is quite likely that, if you open the hives now you will find brood in them, or eggs, at least.

Spreading European Foulbrood

A friend of mine and myself own a honey extractor together, and I find out that he has a light case of European foulbrood, and I would like to know if there is any danger of me scattering it in my yard by using the same extractor? TENNESSEE.

Answer.—In these matters of foulbrood it is very difficult to reply in a positive way, because our experience is still in the experimental stage.

However, European foulbrood does not appear to be transmitted in the honey as in American foulbrood. In the latter, the honey has been proved to be the best means of transmission.

In any case, if you will scald the extractor twice or three times over, with boiling water, there is very little chance that any disease may be transmitted, even in American foulbrood, for the reason that honey is easily washed away and the germs would undoubtedly be washed away also, if not destroyed.

Transferring

I am a beginner in beekeeping and have run up against the following difficulty: I had two swarms of bees that I was compelled to hive in ordinary wooden boxes, having been caught with no modern hives at the time of swarming. Of course I wish to put them into modern hives. They have been in these boxes just one month. What would you advise to do with them? CONNECTICUT.

Answer—.I have had this occurrence a number of times in our outapiaries, though not lately. In each instance I preferred to leave the colonies in the box until the following spring, as I felt more sure of doing safe transferring the following May, during fruit bloom, and saving the combs. When the combs are new they are easily broken and are often a dead loss, but after winter they may be safely transferred.

However, if you were to have a good crop in fall, it might be worth while to put movable-frame hives on top of those boxes, turning the boxes bottom up, so that the bees may go freely from one to the other. In this way they might transfer themselves and still be strong and rich for winter. That is a question which may only be answered locally according to the prospects and expectations.

Diseased Bees

I have one colony of bees among 35 that has some disease; it acts like what you describe as Isle of Wight; they come out, flutter around on the ground and die. They seem to be swollen. This started in them last season; they died all winter in the same way and got worse this spring until I killed them a few days ago. I have a number of supers taken off last fall, some sections partly filled and some not touched, and among them were some that were taken off this diseased colony; but I do not know which they are. Should I burn all of these sections and burn out the supers, or would it be safe to use them again? SOUTH DAKOTA.

Answer.—Your letter reads as though you had killed that colony. If you have not killed it, and there are still some live bees in it, send two or three dozen of those bees in a queen cage with a little candy, to Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C. If you have no live bees and can still get some of

the dead bees, they may be useful in a diagnosis of the disease.

The trouble may be what is commonly called paralysis, or May disease, for which a cause has not yet been discerned. This disease has existed more or less in all parts of the world. We have seen it here, and it injured a few colonies, but soon passed off. It has been found in Florida, California, in the Northwest, as well as in Illinois, Michigan, etc.

I do not believe that honey will transmit this disease to a healthy colony if it is given to it in the summer. Neither do I believe that this honey is unhealthy for human beings to eat. But it is necessary that we should learn more about this disease and whether it is caused by some parasite, as is claimed of the Isle of Wight disease.

Increase

I note in Dr. Miller's "Thousand Answers to Beekeping Questions," as to natural increase in swarming, he states that there is no better way than to let each colony swarm once, moving the present colony to a new location, and hiving the new swarm on the old stand. I understand thoroughly what he means, but will this weaken the parent colony so that I wouldn't get any surplus from it at all? Or will I get surplus just the same from the parent colony? By doing this, won't it strengthen the new colony so that they will swarm in a short while? Is this a good method? WISCONSIN.

Answer.—Although I have rarely used the method of putting the first natural swarm upon the stand of the old colony, removing the latter to a new spot, I know that it is a fairly good method, for it was practiced not only by Dr. C. C. Miller, who was one of the most practical men, but by a number of good beekeepers, among whom I can name W. Z. Hutchinson, who was for years the publisher of "Beekeepers' Review," and was also for many years secretary of the National Association. But these men generally gave the supers from the old colony to the swarm, shortly after hiving the swarm. because the removal of the old colony to a new spot weakened it so that it could not produce any surplus honey, except in an extraordinary season. On the other hand, when the swarm was given the supers already partly filled, two or three days after hiving, it could fill them readily. The reason for a short delay was so that the queen would begin laying in the hive body and not ascend into the supers, as she might have done if these were given her as soon as hived.

As a rule, the old colony just makes enough honey to live and the surplus is taken from the swarm. There is very little secondary swarming under those conditions.

Cleaning Extractor

I would like to have you explain how to disinfect a honey extractor which has been used in extracting honey from colonies strongly infected with American foulbrood. I destroyed one hive, but another, slightly infected, responded to treatment. CALIFORNIA.

Answer.—Use very hot and strong soapsuds, with a brush, and rub every part of the extractor, changing the water two or three times, until you feel certain that no part of the machinery has been overlooked. Then give another rinsing with strong soap-suds, and finish with a clear boiling water rinsing. If the thing is properly done, I do not believe you need be afraid of contamination after that.

Florida

I would like to get a little information as to Florida as a honey-producing State—that is, near Miami. OKLAHOMA.

Answer.—Four-fifths of all the surplus honey produced in Florida comes from the blossoms of nectar-producing trees. Black mangrove, Cabbage palmetto, orange where cultivated, manchineel, pigeon cherry, dogwood, etc., are all good honey producers. But in each honey-producing region there are spots which are better than others. Better go there yourself and select your spot. A great deal of honey is harvested in southern Florida.

Finding the Queen

I find difficulty in locating a queen in a hive. When I open a hive and pull out a frame or two, to look for her, the bees start to run so on the frames that I simply don't get a chance to do anything. When I notice that, I quit at once. In an hour or so, I go back, and have the same results. Would you advise using some kind of a trap to catch her? I use a little smoke, always, when working among my bees. WISCONSIN.

Answer.—The trouble which you have in finding a queen is encountered by every beekeeper who has black bees. That is one of the faults of the common bees, to frighten and run from one end to another of the hive.

Smoke gently at the entrance, then open the hive, using as little smoke as possible; spread the frames apart, to reach, if possible, the one on which there is the greatest amount of brood. Lift it carefully. Have an empty hive prepared to put that frame into and keep it covered if there is any danger of robbing. As soon as you lift the first frame out, look on the exposed sides of the other two frames in the hive. You will often see the queen running down; and you must hasten and lift the frame on which you may see her. A queen running down, away from the light, shows her abdomen so as to be quite visible. I usually catch her that way. But if you fail to find her, she will probably leave the combs and run in the body of the hive. If you have removed all the frames one after another, and have not found her, and have placed those frames in the empty hive, you then have a cluster of bees inside of the hive. If you still have difficulty, shake the bees in front of the hive, on a white cloth. While they run in, you should find her. You may shake all the combs in front in that way before returning them. I have rarely failed to find a queen when I used that method. It is quite similar to the method I employed, in the old days, when hunting for queens in box hives. I drove the bees from their own hive into a box, after having placed a box of similar shape in place of their hive. Then I would shake all the bees on a white cloth in front of that empty box on their old stand. When we shake them a foot or so away from the hive entrance, the queen is easily noticed in the line of march. After she is found, the old hive is returned to its stand and the bees shaken in front of it.

Usually, however, in looking for a queen, she is easily found if the bees are not much disturbed when lifting up the center frames.

Increase

Kindly advise if I take about one or two full frames of sealed brood and 1 frame containing eggs, and put them in a new hive, on a new spot, will they start queen cells and raise themselves a queen and build up for winter if taken care of in regard to stores, if necessary? MISSOURI.

Answer.—Not unless you also take a goodly lot of bees. The brood must be cared for, and if you wish that colony to rear a good queen, it must have a very plentiful supply of bees to keep the brood warm. Of course, if you give it only 2 or 3 frames, it will require less bees than if in a large hive. But it is important that they should have plenty of bees and plenty of food, so the young queens will be supplied plentifully.

As to the amount of stores for the winter, a location as far south as St. Louis will probably have a sufficient amount of flowers in September and October to supply a colony, and you could feed them what they may need. You would have to give them either built combs or comb foundation, for they could not build their own combs in time. Bear in mind that a division made August 1, if it raised its own queen, will not have any new brood before the 22nd, and that brood will not begin to hatch until September 12. There will be no young field bees until about September 25. So the expectations of honey crop from that colony will be very small. Yet it may be strengthened and fed to make a good colony for winter, if all is well.

Sweet Clover Honey

I have several hundred pounds of fine sweet clover honey just now being capped over. Kindly let me know when is the best time to extract so it will keep, put up in retail containers. ILLINOIS.

Answer.—Whenever your sweet clover honey is all capped over it is likely to be fully ripe. If the crop ends and it is not all capped over, let the bees care for it a couple of weeks longer. By that time it will probably all be ripe enough, even such parts of it as may be still uncapped. If you are in any doubt about it, or in other words if the honey does not seem to be as thick as usual, extract it and let it stay in open vessels in a warm, dry room for a few weeks. Usually, however, honey is ripe enough to put up within 2 or 3 weeks after the close of the harvest.

Barrels for Honey

I purchased twenty or thirty barrels from a bakery, expecting to clean them up and use them for honey containers. These barrels have contained condensed milk, sorghum, etc. Particularly those having contained milk are sour. I have them under the roof and am scouring them with lye water. Please tell me if there is any danger of spoiling honey by using second-hand barrels of this kind. Do you paraffine the inside of your barrels before filling them with honey, and is there danger of this paraffine leaving an oily scum on the honey when bottled? OREGON.

Answer.—We have never used any barrels but new ones, or alcohol barrels just purchased from drug stores which had been used only once, and were therefore as good as new. The alcohol barrels are glued on the inside, to make them entirely leak-proof as long as they are not caused to swell and shrink. You will readily understand that, when a barrel is filled with water, the wood swells. It makes it more leak-proof as long as it is thus soaked and, if used for watery liquids it is safe. But honey is a liquid of peculiar properties; if it is well ripened it will readily absorb moisture and will actually dry up the wood of the barrel in which it is contained, the more so because the glue—if any has been used—will have been dissolved. So a barrel must be dry in order to contain honey without leaking.

Now barrels that are sour may be made sweet by thorough cleansing, if the sourness is not too much incorporated in the wood. Barrels that are greasy may be cleansed with lye such as you used, or with sulphuric acid dissolved in a large quantity of water If, after thus cleaning them and thoroughly drying them, they have lost the bad odors, they may be made tight by the use of paraffine, or beeswax. We have used pure beswax, but the difficulty is to heat it and heat also the barrel hot enough to make the wax soak into the wood. In many cases, the wax formed a cake on the inside and finally became loose and fell away.

Paraffine is better than beeswax for this purpose, because it melts at a lower temperature than beeswax, some grades melting as low as 118 degrees. A little grease, if absolutely odorless, added to the paraffine, would make it

stick still better. If a very light coat is used, it will not come off, but it must not be used in such quantity as to run risk of coming off and dropping into the honey; and in order to do it right, the barrel must be heated, as well as the paraffine.

I doubt that such barrels as you mention will do. Barrels are inexpensive when compared to tin containers, and it is worth while to have good ones. Yet I doubt not that those you mention, or the best of them at least, may be made usable; provided the requirements mentioned above are fulfilled. We find good use for barrels as temporary honey containers and we use the same ones over and over, year after year.

Bees in Town

Can people force me to remove my bees from the city limits if they are not actually stinging people or causing trouble? I moved my bees to this location two years ago and had no trouble, so far. But the City Attorney informed me that some of my neighbors demanded that I be compelled to move them. My bees are on the rear of a lot 75x200 feet. On the rear line, between my lot and the street, there is a screen of growth which in summer completely shuts the bees from the street, and tall trees all around which compel them to rise high to get out. Across the street there are two houses, and that street is not traveled by anyone but the parties living in those houses

I asked the attorney to write these complaining parties and offer to give them honey out of my crop. He lately told me that if I did not move them, they would ask the City to order the bees removed. I don't want any trouble, But I certainly don't wish to move my bees unless they are doing actual damage.

Can they force me to move them?

MISSOURI.

Answer.—If your bees are not stinging people or horses, so as to be proved a nuisance, no one can make you move them, neither has any city the right to make an ordinance prohibiting the keeping of them within the city limits. The matter has been tried in courts and has been decided by the Supreme Court of several states. Notably, the Supreme Court of Arkansas, June 22, 1889, declared such an ordinance invalid.

If, however, proof could be advanced of persons being stung or of accidents caused by horses or other animals being stung, your apiary might be condemned as a nuisance. But in the position which you describe there is very little if any danger of your bees interfering with any one. I have seen an apiary in the heart of the city of Peoria, Ill., kept within 30 feet of neighbors' homes, with just a wire fence with inch meshes between them and the neighbor's yard. Bees dislike to fly through an inch mesh and therefore rise high enough to be flying over the heads of the people, and no trouble was caused.

A very important thing is to handle your bees carefully, using smoke when you handle them, so as not to cause them to become angry and sting any one. This may be done easily. If you have any cross bees, change their queen.

Transferring

July 1 I turned two old box hives upside down; two weeks have passed and the bees don't seem to come up in the new hives, but stay below. Would you bore a hole at bottom of old hive and smoke them up? If so, will they stay up? I would like to transfer, as my old box hives are very poor. INDIANA.

Answer.—It is quite probable that you have done this inverting of box hives too late in the season. In your locality the white clover crop does not last much beyond the first of July. As a matter of course, if there is no honey to be harvested, the bees will not leave their present quarters. You do not say whether there is comb foundation in the new hives. If there is, it would be a little more of an inducement for the bees, as they would not have to build comb. There may be a crop yet, later, from persicarias, boneset, Spanish needles, etc. In that case you might succeed in getting the bees to move into the upper hive, by drumming them. If the queen goes up, and there is comb foundation there, she will most likely stay, and it will be only a question of time when the entire colony will move. If you get the queen to breed in the upper hive, then reverse the hives, putting the box above.

Transferring during fruit bloom, by the usual way of drumming the bees, cutting out the brood and transferring it to the frames, is a very much more positive way. But of course it is more labor, also.

Lewis Treatment for European Foulbrood

As to the Lewis treatment for European foulbrood, I have treated several swarms three times and have found that though this helps in a cleanup, it should not make a great deal of difference with the kind of bees kept in a foulbrood neighborhood. I have used BK from very weak to stronger than prescribed strength. I will probably keep it on hand as indispensable as long as disease persists in the vicinity. I have killed some queens because they did not clean up fast enough under treatment, while other Italians from same stock and one black swarm are cleaning up at a fair rate.

Lynn C. Reynolds, Wisconsin.

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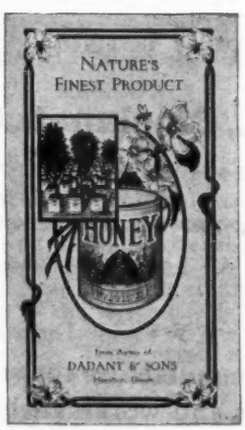

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AMERICAN BEE JOURNAL, Hamilton, Illinois

Montana Beemen Meet

The Montana State Beekeepers' Association in the past has been largely a honey producers' organization, and the individual membership fee is $10. The men are now fully convinced that it is necessary for them to give the small beekeeper all the co-operation possible. With this in mind, a project was outlined for the organization of a local beekeepers' association.

The first meeting was held in the apiary of Mr. L. W. Thorpe, president of the association. Some time was spent in the apiary demonstrating and discussing the treatment of American foulbrood, which, at the present time is quite serious in the Yellowstone Valley. This was followed by a talk by Mr. F. E. Clift, under the shade trees on Mr. Thorpe's lawn. After this discussion, the Yellowstone Beekeepers' Association was organized, and it was voted to make the membership fee $1.20 a year. For every ten members, one vote is allowed in the mother organization. One dollar of the fee goes to the organization, and the local members are entitled to all the privileges of the big association, and the remaining 20c is to defray the local expenses of the local association.

With Mr. E. F. Clift, Prof. O. A. Sippel and E. W. Atkins, a similar organization was started in the Bitter Root Valley. This was brought about at a very interesting meeting held in the apiary of Mr. David Pyle, at Hamilton. This organization is called the Bitter Root Valley Association. This valley is very fertile, well irrigated, and the soil is well adapted to the growth of sweet clover and alfalfa. The former plant is increasing in abundance and honey of very heavy body and extra white in color is obtained. There is a great opportunity for the development of better methods of beekeeping in this valley, which the new organization hopes to promote, together with a study of better marketing conditions.

The third meeting was held at the Agricultural College in Bozeman on June 14. There were 14 men present at this meeting, which were mostly vocational students taking work in beekeeping under Prof. Sippel.

Colorado Honey Producers

On June 3 the annual summer field meeting of the Colorado Honey Producers' Association was held at Longmont, Colo. This meeting commenced at 10 o'clock, and for the first hour the beekeepers had an opportunity to have an informal visit among themselves. At 11 o'clock they were entertained by a moving picture show, where the Government film "How Bees Live and Work," and the Lewis "Beeware" film were shown. The party then adjourned to the Fair Ground Auditorium for lunch. The people brought their own lunches, and the association furnished hot coffee and ice cream.

There were at least 100 beekeepers in attendance, and with their families the attendance was at least 200.

After lunch the formal session of the meeting was taken up. Vital problems of the association were discussed by Manager Frank Rauchfuss, Mr. Wolfe, and many other members of the organization. Mr. Newton Boggs, State Deputy Inspector, discussed plans for the development of beekeeping in Colorado, and the writer discussed fall management of bees. E. W. Atkins.

BEEKEEPING IN RESTORED BELGIUM

Mr. Leon Tombu, well-known to our readers, writes us as follows concerning the prospects for beekeeping in Belgium four years after the war:

Winter was exceptionally long and we lost many colonies. Dysentery was the principal cause. As a result, spring dwindling such as we never saw before, increased the losses. Many colonies were reduced to the size of a small swarm and, at this date, June 1, they are still weak.

The honey crop is ten days late. It has just begun. No natural swarms except in the colonies received from Germany last fall. However, the Italian colonies show great superiority. We have one, whose queen was received from Piana, in each of two apiaries, that harvested honey enough to be nearly ready for extracting.

HONEY **WANTED** HONEY

We are in the market for both comb and extracted. Send sample of extracted, state how put up with lowest price delivered Cincinnati. Comb honey, state grade and how packed with lowest price delivered Cincinnati. We are always in the market for white honey if price is right.

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TEMPER OF SUPERSEDING BEES

By Frank C. Pellett

Every beekeeper has noticed the tendency of certain colonies of bees to develop suddenly a bad disposition. The bees from such colonies will often follow one for hours when working about the apiary.

At the recent Missouri State picnic, Miss Compton made the statement that she had tried the experiment of throwing flour on the bees which were following her about, to enable her to identify the colony from which they came. Investigation showed her almost invariably that the colony was queenless.

A few days later E. M. Cole visited the writer and in conversation Miss Compton's observation was mentioned. Mr. Cole then stated that he had observed that colonies which were about to supersede their queens were often unusually cross and difficult to manage. He stated that colonies which were violent in temper were often quite gentle again as soon as the new queen had started to lay and long before any of her offspring emerged. In this case the change in temper could only be explained by the difference in conditions within the hive and not by any change in the population itself.

Mr. Cale, who has charge of the Dadant apiaries, verified the observation of Mr. Cole, stating that he had observed the present season that colonies which were extremely cross had continued to build cells for a long period, starting a new batch as soon as he had removed one. After a new queen emerged the bees regained their former placidity of temper. E. M. Cole is the first person, as far as we know, who connected this tendency of certain colonies to become extremely cross, with the desire to supersede the queen. It is an interesting explanation and we will be glad to know whether others can confirm it.

THE VALUE OF HONEY AS A REMEDY

By Dr. Brunnich

It is a well-known fact that honey, always and everywhere, has been esteemed as a most healthful substance, and it was this idea which gave to the bee, as well as to the beekeeper, a sort of venerable nimbus. Although this has changed, there is still at present in the minds of the people a feeling that honey is a food of great fortifying virtue. Until lately no one endeavored to prove the truth of this statement, and there existed no scientific basis for the prescription of honey in certain cases of illness or weakness. Last year, at one of the meetings of the Swiss Society of Beekeepers, Mr. Frauenfelder made a statement which proved the validity of the popular opinion on this subject.

Mr. Frauenfelder, director of a sanatorium for children, made, with the assistance of his physician, a series of experiments upon the influence of honey as food. He has, in his establishment, children of weak constitution, or in reconvalescence. He divided them into three groups, to the first he gave the usual food; to the second group he gave, in addition to the usual food, honey, after a definite scheme; to the third he gave no honey, but medicaments and remedies for fortifying them, for the appetite, etc. As control, the blood of the children under experiment was examined, and the quantity of hæmoglobin found, before, as well as at the end of the cure.

It was highly interesting to see the enormous progress of the honey group; the increase in hæmoglobine threw into the shade the first and third groups; the general state of health was also conspicuous. Mr. F. gave us a great number of examples which supplied a comparison of the three groups and proved the high value of the honey cure.

One more word as to the accomplishment of the cure. Mr. F. found the giving of the honey diluted in warm (not hot) milk to be the best way of administering it. He began with small doses, which he increased gradually up to two tablespoonfuls per day.

According to Mr. F. the most valuable point is not in the increase of hæmoglobine and weight of the children, but in the fact of a **great and distinct strengthening of the organism.** From this resulted a greater power of resistance against disease, and of course a better cure of existing maladies.

To which one of the different substances in honey may we give credit for the above mentioned healing and strengthening of character? There is no doubt that the **hydrates of carbon** represent a very valuable food of easy digestion, but the quantity of them is too small to explain the astonishing results. Nor can we ascribe them to the **aromatic substances and the formic acid,** though their disinfecting power may, in certain cases, cut a figure. We think, with Mr. F., that in honey there are certain ferments (enzyma) which are responsible for its good effects. These are albuminic substances of whose constituents we know very little indeed, but whose existence is proved by their action. Some of these ferments of honey are pretty well defined. It is important to know that they are very sensitive to heat and that temperatures above 120 degrees F. destroy them. Therefore honey should never be heated above 120 degrees if we will not deprive it of its noblest components.

(The article by our esteemed friend Dr. Brunnich, on the value of honey as a restorative, showing that some of its best properties may be destroyed by heating, is another argument in favor of the point, which we have often urged, of the necessity of educating the public mind to the use of honey in the granulated state, and to the fact that this granulation, or "turning to sugar," as so many call it, is an evidence of its purity.—Editor.)

WHAT'S IN A NAME?

By John Protheroe

Fortunately for its readers, the American Bee Journal does not encourage in its pages long controversies on minor points in apiculture, or I might be tempted to go further into the inner cover question with Mr. Allen Latham. Instead, I want to have a tilt with him on another matter, on his advocacy of the sale of crystallized honey as "honey butter." I would go to extreme lengths in avoiding any embroidery of the word "honey." I would have beekeepers use no description but 'Pure Honey," "Pure Honey in the Comb," and "Pure Honey from the Comb." When once you begin to add trimmings to the word "honey" you are giving ground to the enemy adulterator. Could Mr. Latham or anybody else bring suit against me if I made a mixture of low grade South American honey, sugar syrup, and glycerine and put it on the market as "Honey Butter?" My plea would be, "I never called it pure honey. Are you going to prosecute a candy manufacturer who makes a sugar product with a synthetic flavor and puts it up as "Honey Drip?" Is the public so foolish as to believe that that stuff ever dripped from a comb? Are you going to prevent a manufacturer of cosmetics from putting up "Cream of Roses" or sue the proprietors of "Cream of Wheat" because they are deceiving the public about cream? No; beekeepers must defend the word "honey" with the utmost jealousy. Here they are on firm ground and can counter-attack the adulterator with success and justice. But when you label a pure product with a label that can just as well be applied to an adulterated article, you are inviting unfair competition with no corresponding advantage that I can see.

If anyone buys stuff in a grocery labeled "Cream of Honey," "Honey Syrup," or "Honey Butter," he is running a risk. If he dislikes it, the purchase has done the beekeeping industry harm. An association has been created between this manufactured stuff and the pure product of the bee. It is an unfortunate fact that the public is suspicious of honey. Any beekeeper must often have had the experience of being introduced to a stranger with the remark that he was a bee enthusiast and have him answer, "I like honey well enough, the kind we used to get years ago, but today the manufactured stuff has driven it out of the market." Then follows the usual superstition about artificially made sections.

No; I certainly think that to call pure honey "Honey Butter" is a mistake. I shall put on the Connecticut market some attractive little packages containing glucose, glycerine, invert syrup, synthetic flavoring, and a little Cuban honey and label it "Honey Butter, Luscious and Appetizing." What will Mr. Latham do about it?

Virginia.

ONE PHASE OF CLUSTERING

By George Gilbert

Bees cluster out when the population of the hive is large. Do they cluster out for mere lack of space to contain their numbers? Or because it is too hot inside the hive? Or because the air is vitiated inside from numbers?

Take the case of bees that have "gone with the wild bunch" and taken up quarters in some old deserted building. The population may wax great and the entrance be only a knot hole, but if there is ample room under cover, there will be little, if any, clustering out. Where could the temperature wax higher or the air become more vitiated than in a cranny in an old house beaten upon by the sun of summer? Anyone who has worked in an old attic or waste space up under some false dormer must know how those places heat up when the sun beats on the clapboarding outside with full might. Bees, however, seem to enjoy being in such places and will fill all the available space with comb and stores in a series of years if left in undisturbed possession. And with little, if any, clustering out. Hornets and wasps will build nests in attics so hot that a human being can hardly remain in them long enough to wish he were out again. Great masses of ants live in close-packed hills with little apparent means for ventilation. I say "apparent," because what humans might think poor ventilation, to tiny things like insects might prove ample.

I have a theory as to the clustering out of bees, and it is this: When warm, the bee occupies more space than when cold. Hence, when warm, the space in the hive that will contain say 40,000 cool bees will not contain 40,000 warm bees.

Take a warm, balmy day and note how a bee "spreads" herself. The legs are at a sharp angle from the body as she turns toward the sun to enjoy its warmth; the wings, instead of being "sleeked down" to her sides, are somewhat raised and held a bit away from the abdomen. The antennæ, even, are cocked up at a jaunty angle, as who should say: "My, I am enjoying this sushine, aren't you?"

Take the bee on a cool day and what do we see? The legs are drawn in toward the body; the wings are held close in, the antennæ are not so prominent. The bee takes up less space now than on a warm day.

The close packing of bees in a torpid cluster in winter illustrates the point, and the larger circumference of the cluster when the bees are awake does, also.

Let the hive be well filled with bees until, normally, all the space is comfortably occupied in the moderate weather of late spring. The bees find room in the hive and none to spare. They do not cluster out. But now comes a day of great heat, verging upon summer's ardency. Each bee, expanding a little under the genial influence, takes up more room. And as each crowds a tiny bit, some of them are bound to be crowded out onto the entrance board. To save being pushed to the edge, where the little night breezes may chill, they cling to the board, under the overhang. We have now the cluster outside that tells us that the hive is overflowing with life and vitality. As soon as day returns and the workers go to the fields, congestion is relieved. Or, if the temperature drops during the night, the bees "shrink down" a little and the cluster outside has room to edge indoors. A bee likes to be inside when she can. On days when bees cannot fly to work, the air may be muggy and hot, though a little rain falls. Yet the bees, being warm and therefore enlarged (apparently) will overfill the hive and will cluster out. Let the air cool off and the bees will go inside, as the bees inside contract legs, wings and antennæ so that they occupy less space per bee. I conclude that the bees cluster out because they lack room inside; they lack room inside because they are so warm inside that each bee takes up a little more than her normal space. The warmth in itself does not explain it; the warmth causing the bees to take up more room, does.

New York.

(We believe all three of the reasons that our correspondent mentions are responsible for their hanging out. The fact that bees ventilate with great vigor, by fanning with their wings, not only at the entrance, but also all through the hive and out again, so as to create a current of air, proves that they need air and a lowering of the temperature, besides mere additional space.—Editor).

HUBAM OR BIENNIAL SWEET CLOVER, WHICH?

By J. B. Bradshaw

I notice there is quite a lot printed about the good qualities of the new annual sweet clover, "Hubam." I think the most profit is from the sale of high-priced seed, as for any new article first on the market. I cannot see any advantage over the biennial **(Melilotus alba)**, except that if you do not have any to start with you get bloom from the annual one year sooner. I have never planted either, but I have trouble in keeping my ranch clear of the biennial sufficient to harvest a good grain crop without difficulty. I have three acres of alfalfa hog pasture, with division fence; 1½ acres in each piece. Hogs will not eat sweet clover, hence when alfalfa is pastured close the sweet clover shades the ground too much for good growth of the alfalfa. Therefore, in June last season, when the alfalfa was very short in pasture No. 1, I changed hogs to No. 2 and cut a good crop of hay from the sweet clover. Our bees worked on the clover in other places on the ranch till late in fall; then pasture No. 1, in full bloom, was full of bees from morning till night, while other beekeepers said their bees had nothing to work on.

Another advantage of the biennial: We can plant it with wheat and the sweet clover will not get high enough the first year to bother in the harvesting of the crop; then you have your clover crop next year without having to prepare your land each season. We can also renew our land with the biennial without the loss of a full crop, by sowing with grain. Harvest your grain; next season cut one crop of hay; then plow under second crop and sow to grain again. We always plant spring wheat or oats, but this plan would work with fall grain just as well. I can now buy the biennial seed for 4 cents per pound, while the annual will cost me from $1 to $2 per pound, and no difference in results that I can see.

Colorado.

RIGHTS OF A HONEY PEDDLER

Please, will you kindly inform me, and for the benefit of other beekeepers who sell their honey direct to the consumer, explain the laws which govern the sale of honey by the producer in house to house peddling. Many of the small towns and cities pass ordinances which require every peddler to take out a license, to protect the merchants, who usually make the ordinances. As I understand it, any farmer or honey producer can sell his own product anywhere without license, and any ordinance that will prohibit him from doing so is conflicting with State and Federal laws, and therefore not valid.

California.

Answer by J. D. Gustin:

This subject is one which falls wholly within the police power of the states and not within the interstate commerce clause of the Federal Constitution, or, so far as we are informed, within the provisions of the Constitution of any State. A city ordinance prohibiting the peddling of honey or imposing a license fee upon the privilege would not be void as contravening any constitutional provision.

The statutes of the several states contain more or less specific provisions for the incorporation of, or grant of charters to cities, towns and villages. These statutory provisions, in many, if not all, cases, undertake to set forth the powers with which the cities and towns may be endowed. Some of these statutes are very general in their terms, while others recite with great particularity the specific powers which may be granted. So far as we know, the rule is universal that municipal corporations (the common legal term for cities, towns and villages) may impose license fees and prescribe regulations for the carrying on of any business within their limits. Peddlers of goods, wares, and merchandise are almost invariably specially taxed. The selling of fresh meats from wagons by house to house visits is also generally taxed—rather more on sanitary or public welfare grounds, we believe, than as a source of revenue or for protection to the regular dealers.

In many, if not the majority of states, the peddling of milk, vegetables, eggs, butter and kindred farm

ers of the articles is specifically exempted from taxation or license, but probably not from such regulation as public health or sanitation may require. The sale of honey would probably be held to fall within this exemption, unless the language of the statute is such as to exclude it.

To determine the rights of the honey peddler in any given territory would involve an examination of the statutes of the State on both subjects —peddlers and municipal corporations.. We see no reason why, absent any statutory prohibition, a municipal corporation may not bring the sale of honey under the same reasonable regulations as are prescribed for the sale of other commodities or the conduct of other business within its limits, but of course there must be a valid ordinance fixing the amount of the tax and the period covered by its payment.

CANTALOUPES IN IMPERIAL VALLEY

In the current issue of the Journal, page 325, you quote the Chicago Packer, saying that Imperial Valley has about 35,000 acres of cantaloupes. This is just 4,000 too many acres. But if you could be here and see a train load of "cants" going out every two hours of the twenty-four, and each train averaging 50 cars, you might well wonder where all these "cants" came from. It is a stupendous industry, the magnitude of which few people outside of this Valley can realize.

I am pleased to tell you that we regard the cantaloupe bloom as a fine source of nectar. I have repeatedly watched the bees when walking over the great fields growing this luscious melon, and I can assure you it is enough to warm the heart of any beekeeper to see bees so busily engaged in securing this golden nectar.

In my opinion, one-third of the honey produced in this Valley this season will have been taken from cantaloupe blossoms.

Of course you must know that there can be no absolutely pure cantaloupe or alfalfa honey. The bees blend it. My bees are in the midst of the cantaloupe fields, while scattered all about are fine fields of alfalfa. Perhaps my bees have just about an equal acreage over which to range, and I think I am safe in stating that my honey will be a fifty-fifty product, for I have not yet extracted.

In a week or so I will be pleased to send you a sample of our honey that you may judge of its merits. We think it is the finest honey in the world, of course, for we are Californians.

P. Holt, M. D.,
California.

REPELLANT FOR SPRAY

Gentlemen: In your April number I read with much interest the statement in regard to the use of milkol as a repellant in spraying to prevent the poisoning of bees. I wish to say that any of the repellants used to spray cattle will have the same effect and that it is not necessary that the repellant, milkol, be used, as the others are equally as good. We have used them at the rate of one-half pint or a little more to 50 gallons of spray, when spraying fruit and with good success. Let every one who sprays fruit trees use the fly repellant that is sold in his town and the loss of bees from poisoning will be done away with.

W. A. Johnson, Wisconsin.

ACARINE DISEASE IN SWITZERLAND

Sir: In the May number of the "Bee World," p. 293, it is stated by Miss Betts that Tarsonemus woodi in Switzerland is an "apparently harmless external parasite." This expression does not correctly reproduce my view. According to Dr. Rennie's and also my own investigations, I am convinced that the Tarsonemi found by me externally were only dead animals and that here (in Switzerland) also, they live only in the tracheae. They are thus not external, and I believe further, that they are not harmless. They certainly damage the stock by causing untimely death of many bees before crawling symptoms are developed.

Yours faithfully,
O. Morgenthaler,
Liebfeld, Berne.

The Bee World, June, 1922.

POLLEN GATHERING

Dear Mr. Dadant:

1. I am working on a problem of pollen gathering by bees, and there is mention made in "The Honeybee," 1922, that Huber discovered that pollen is the principal food of young bees, page 97, section 263, 9th line. Could you give me the page and reference of his work or paper that this is taken from? Is it "Nouvelles Observations sur les Abeilles?"

2. Then on page 99, section 266, beginning of the fourth paragraph, mention is made that Aristotle observed that a bee confines herself to one kind of blossom in gathering pollen. Could you give the page and reference in this case?

Could you also tell me of the first reference to bees in ancient history and what year B. C.?

Answers. — 1. Huber's experiments with pollen as food for the brood are given in the chapter on "L'Origine de la Cire," (The origin of wax), page 54 of "Nouvelles Observations," 2nd volume. The passages especially relating to the evidence that bees cannot rear brood in any quantity without pollen are on pages 74 to 85. In the English edition (1821) the same subject is found on pages 341 to 348.

2. As to the Aristotle observation on bees gathering only one kind of pollen at each trip, as I do not have his work, I am unable to give you the page. It is somewhere in the chapter "De apum generibus," in the "De Animalibus Historiæ, Lib. X."

In regard to this matter of the gathering of pollen from only one kind of blossoms at one time, it is interesting to state that Mr. Cale has just shown me a pellet of pollen, taken from a bee, and exhibiting very plainly two different colors. It is fastened to the inside of a little vial, so that it may be seen very plainly. It is perhaps only a freak, for I never saw anything like it before.

3. As to the date of the first mention of bees in ancient history, we should have to possess the History of Mythology, The Vedas, the books of Confucius, besides the Bible, before we could fix a date for the first mention of bees. Bees undoubtedly existed and were mentioned in writings as well as in hieroglyphics, as far back as man made records. In most cases the dates of these records are only surmised.

Two books which we have here, concerning bees in past ages, "L 'Abeille a Travers Les Ages, par Jules De Soignies, Brussels," and "The Honey-Makers, by Margaret Warner Morley," do not attempt to place a date upon the first mention of bees in the records of man. Mrs. Morley, page 247, speaks of bees appearing in hieroglyphics, in Egypt, under the fourth dynasty, some four thousand years B. C., which would place them at what used to be thought the creation of the world. Since our study of geology has shown the immeasurable antiquity of the earth, we have much revised our supposed dates and will probably revise them still.

Beekeeping in Tchekoslovakia

Here is a country which was nonexistent four years ago and which can show much vitality. The "Bulletin of the Ministry of Agriculture of the Tchekoslovak Republic," in its April number, gives the following statistics concerning beekeeping in 1920:

Provinces	No. of Bee-keepers	No. of Hives of Bees	Honey Produced in Kilo'ms
Bohemia	46,791	181,142	492,997
Moravia	14,672	89,356	120,513
Silesia	3,648	17,027	22,338
Slovakia	18,785	90,669	554,601
Subcarpathian Russia	2,792	11,699	83,032
Totals	86,689	389,893	1,273,481

We must bear in mind that this is the country which decided to organize into a republic before the ruling countries which thought they owned it had realized that they were about to lose it. Evidently they are not letting the grass grow under their feet.

Honey Factories

The old story of manufactured honey continues to go the rounds of the press. It seems impossible to convince the public that honey is not manufactured, but that it is gathered from the flowers and stored by the bees. Several clippings have come to this office with stories of honey factories. One such story tells of the increase of the capacity of the factory from a small output to the present capacity of three tons per day of pure honey.

BOOK NOTICES

Radio for Beginners

Since the radio-phone bids fair to come into general use very quickly, everybody is interested in equipment which will enable them to listen in on the general service broadcasted from numerous centers. The Norman W. Henley Co., 2 W. 45th St., New York City, has recently issued a paper bound book entitled "Construction of Radio-Phone and Telegraph Receivers" for beginners, which sells for 75 cents. The same firm offers "How to Make Commercial Type Radio Apparatus" for 75 cents and "A, B. C. of Vacuum Tubes in Radio Reception" for $1.

The Modern Hen

From the press of the Iowa Homestead comes a new poultry book, "The Modern Farm Hen," which is devoted to the place of the hen as a farm side line. The b ok is printed on fine paper, well illustrated, bound in cloth and sells for $1.

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Reduced prices for August and September.

1 untested queen	$ 1.00
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50 untested queens	45.00
100 untested queens	85.00
1 tested queen	2.00
6 tested queens	11.00

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Our hardy, immune, prolific strain of 3-banded leather colored Italians. Developed from the world's best strains by careful selection and tested under California conditions for five years, with excellent results. My specialty will be breeding stock and every queen produced will receive my personal care and inspection. Now receiving orders for the season of 1922, which will be filled in the order of their receipt. Write for catalog and prices.

THE COLEMAN APIARIES,
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Big Georgia Meeting

President Wilder advises us that the Georgia beekeepers will hold a three-day meeting at Hopkins on the edge of the Okenefenokee swamp, on August 24, 25 and 26. This is a very interesting region and it is expected that a large number of beemen will attend.

Maryland Meeting

On June 24 the Maryland State beekeepers met for a field meeting at the home of Colonel Clinton L. Riggs, Foxhall Farm, Cantonsville, Md. The Carniolan bees attracted the major attention of the visitors, though the producing apiary at present is composed of leather-colored Italians. About 50 members made the trip.

The July meeting will be held at Somerset as the guests of the Department of Agriculture. An attractive program has been arranged for the occasion, and a large attendance is assured.

Exchange Professors

It is a promising sign for beekeeping that the work has now reached the point where the various agricultural colleges are beginning to offer opportunities for exchange of work among the professors teaching that subject. During August Professor F. B. Paddock, of the Iowa College of Agriculture, will do extension work in Colorado, while Prof. Wallace Park of the same institution, will teach a course in beekeeping at the Florida University at Gainesville.

Ohio Field Meet

The Ohio State field meeting will be held at Delphos, on Wednesday, September 13. Details concerning the program will be announced later.

Wisconsin Beekeepers' Field Meet

Wisconsin beekeepers will hold their annual summer conference at Green Bay, on August 7 to 11. A five-day program is offered, with well-known men as speakers. Camp grounds are to be provided near Bay Beach, where the meetings are to be held.

New York Summer Meeting

The Empire State Federation of Beekeepers' Co-operative Associations is planning a big day's celebration at the apiary of N. L. Stevens, at Venice Center, Cayuga County, New York, on Friday, August 4.

In addition to a program of addresses by prominent beekeepers, there will be a drawing for a number of prizes donated by various supply firms and queen breeders.

A general invitation is extended to interested persons to come with the whole family and a basket of lunch and spend the day. For the benefit of those who do not bring lunch, a lunch counter will provide supplies at a nominal price.

Death From Bee Sting

New York—Harry Collard, a farmer of Pine Brook, N. J., was stung on the right temple by a honeybee Wednesday. He stumbled across the farmhouse in a fainting condition and collapsed in the kitchen, after telling his wife what had happened.

Ten minutes after he had been stung he was dead.

Physicians said that a bee sting in the temple or on either knee results fatally nine times out of ten.—From Milwaukee Journal, April 27, 1922.

(No physician with actual knowledge would advance such a statement.. It is good newspaper stuff. A sensation, at any cost, is what newspapers are after. We have been stung thousands of times, and are quite alive yet. Once in a great while someone under great nervous strain dies from the effect of bee stings. But such occurrences are about as rare as death from earthquakes.—Editor.)

Hubam Sweet Clover Failed to Ripen Seed in Interior of British Columbia

A trial plot of the Hubam Sweet Clover was grown here last year from seed obtained from the United States. The seed was coated with nitro culture and sown in May on a piece of newly-cleared ground that had not been cropped previously. It germinated well. The plants made good growth and commenced flowering in August, continuing in bloom until killed by frost. The seed, however, although freely produced, remained green, and failed to ripen. It will be interesting to know if this is the experience of others who have grown this variety in the interior of British Columbia. If it always fails to ripen seed in this latitude this does away with its utility to a large extent, as it would mean that seed would have to be purchased every year. Possibly if the seed was sown in the fall this difficulty would not arise, as there would then be a longer season of growth.

W. J. Sheppard, Nelson, B. C.

Just Nonsense

R. H. L.: Quite a curious thing occurred in Lafayette's unpretentious zoological park today. One of the brown bears became worried by a bee, snapped at it, and missed it. The bee became enraged and stung the bear on the nose, but was unable to withdraw its sting. Consequently the bee was obliged to fly away with the bear, but was unfortunately unable to drag the animal through the narrow opening to its hive. The investigations of the Lafayette Journal-Courier have determined that the bee solved the difficulty by eating the bear. I thank you. Sincerely yours, Wm. E. R. Middleton.—Chicago Tribune.

That bear probably belonged to the same family as a couple of elephants which one of our sportsman beekeepers shot in a clover field. He picked up one of them, but the other one was lost in the clover. It was perhaps, some of that new Hubam clover which grows so very tall.

DON'T BE CONFUSED

In buying a larger hive than the ten-frame Langstroth hive. Quinby invented an eight-frame hive with frames about 11¼ inches deep. It was long ago found inadequate in size and was made into a ten-frame hive, a size we have offered for some years.

Charles Dadant found the ten-frame Quinby depth hive needed another frame. He also found it a beekeeping necessity to change this hive further, and evolved the 1½-inch spacing from center to center of the frames. This is the real principle to be considered.

1351 Carson St., Victoria, B. C., Canada
January 25, 1921

Dadant & Sons,
Hamilton, Illinois

Gentlemen: In your catalog you say the price of a Dadant Hive may seem high, but that refers to body only. To me a complete hive is one that has all the requisites for the production of one hundred pounds of honey. In the case of a Dadant Hive it means one brood chamber and two supers. In case of the ordinary hive as now managed it means four stories, two of these being for brood chamber. Just itemize the total cost of a complete hive, and I think you will find the Dadant Hive leading by a few dollars.

Yours sincerely,
F. DUNDAS TODD.

The Large Hive for Extracted Honey Production

Among the reasons why the Modified Dadant Hive deserves a trial, especially where present equipment is not giving satisfaction are:

Deep frames 11¼ inches. Frame space ventilation, swarm control easier, 6¼ in. extracting frames.

Large one-story brood nest, adequate winter stores, greater brood room, standard covers, bottoms.

Present equipment may be used as super equipment on Modified Dadant brood chambers. Covers and bottoms for this hive are the familiar metal roof cover with inner cover and regular standard bottoms, except for larger dimensions.

The standard of workmanship is "Beeware." Write for free booklet on this hive to

G. B. LEWIS COMPANY, Watertown, Wisconsin
DADANT & SONS, Hamilton, Illinois
There's a Distributor near you.

QUEENS

Our Old Reliable Three-banded Italians are Honey Getters. They are gentle, prolific and very resistant to foulbrood. Orders booked for one-fourth cash. Safe arrival guaranteed. Circular free. Prices April 1 to July 1:

	1	6	12
Untested	$1.00	$5.50	$10.00
Select Unt.	1.25	6.50	12.50
Tested	2.25	12.50	24.00

Select Tested, $3.00 each.

See our ad in January Journal.

JOHN G. MILLER
723 C St., Corpus Christi, Texas.

QUEENS,

Select three-banded Italians that will please. Our bees are unexcelled for gentleness, disease-resisting qualities, and honey production. Pure mating and satisfaction guaranteed.

	1	6	12
Untested	$1.25	$ 7.00	$13.00
Select Untested	1.50	8.00	14.00
Tested	2.50	13.00	25.00
Select Tested	3.00	16.00	30.00

Select Tested Breeders, $5.00.

Day-old Queens, 40 cents each.

Queens ready to ship by return mail. Queens' wings clipped free of charge. Write for descriptive circular and prices per 100.

HARDIN S. FOSTER, Columbia, Tenn.

QUINN'S QUEENS OF QUALITY

Have no superior. "There's a reason." Are Mendelian bred, good qualities accentuated. Gray Caucasions, gray Carniolans, most gentle of all, prolific, hardy, vigorous, disease-resisting, white comb builders —they deliver the goods.

CHAS. W. QUINN,
Powhatan, Va.

O. E. TIMM

is back in Nebraska giving personal attention to all orders.

July and August are too hot and dry to raise queens down South, therefore we can turn out better quality queens and get them through quicker.

Italian Queens, $1.00 each; $90 per hundred.

THE BROOKSIDE APIARIES
Bennington, Nebraska.

CARNIOLANS

are very gentle, very prolific, wonderful honey gatherers, build exceedingly white combs, little inclined to rob, resist brood diseases equal to any race of bees, and will swarm no more than Italians, if properly managed. *Ask for my free paper describing their merits more fully.*

Untested, $1.50 each; $16.00 per dozen.
Tested, $2.50 each.

During August is an excellent time to requeen in the Northern States.

A. G. HANN, Glen Gardner, N. J.

Heavy Laying Italian 75c Queens 75c

Bred for honey production. They are large, yellow and very prolific, and produce bees that are large, vigorous, disease-resistant, gentle, and the best for honey gathering.

I breed only the best, and guarantee perfect satisfaction; also safe delivery in U. S. and Canada.

Untested, 75c; tested, $1.50.

ULIS BLALOCK, Christine, Tex.

DARROW'S SELECT ITALIAN QUEENS

Have given satisfaction since 1903. Prompt shipment; no disease. I guarantee perfect mates, safe arrival and absolute satisfaction. I only list untested three-banded, with an exception of a limited quantity of the lighter breeds. My prices are right.: 1 for $1.25; 4 for $4.60, or 10 for $10.

WILLIE H. DARROW,
Rt. 1, Milo, Mo.

QUEENS QUEENS

KNIGHT'S THREE BANDED

Give them a trial and be added to my book of satisfied customers

PRICES FOR BALANCE OF SEASON:

1 Select untested ------$1.00
5 Select untested------$4.75
10 Select untested------$8.50
Tested Queens ------$2.00 each

For larger quantities write for prices.

I have the bees, men and equipment to handle rush orders by return mail. Pure mating and satisfaction guaranteed. It is left with customer to say what is satisfaction. No disease.

JASPER KNIGHT, Hayneville, Alabama

Big Reductions on Bee Supplies

Shipping cases, $30 per 100.
Slotted section holders, $3 per 100.
Sections, 1⅞, No. 1, $10 per 1,000.
Job lots of frames, regular size, $3 per 100.
Standard Hoffman frames, 9⅛ in. deep, $4.50 per 100.
Unspaced wedged top-bar frames, 9⅛ in. deep, $2.75 per 100.

SEND FOR CATALOG AND PRICE LIST

CHARLES MONDENG

146 Newton Ave. N. and 159 Cedar Lake Road

MINNEAPOLIS, MINN.

THE FAMOUS TEXAS QUEENS

Three-banded and Golden Italian

The FAMOUS TEXAS QUEENS can now be had again at prices that are in the bounds of reason. No need of you paying high prices.

My Texas Queens are well known over the world.

Untested queens $1 each, $11 dozen.
Tested queens $1.25 each, $14 ozen.

GRANT ANDERSON, Waco, Tex.
Route 2.

HOOSIER-BRED QUEENS

HIGH QUALITY

THREE-BAND ITALIANS

	1	6	12
Untest. Queens	$1.50	$ 8.50	$16.50
Select untested	2.00	11.50	22.50
Tested -------	2.50		
Select tested --	3.00		

Safe arrival and satisfaction guaranteed. Circular free on your request.

WM. R. STEPHENS,
Wingate, Indiana.

The Bee World

The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you?

Specimen copy free from the publishers: The Apis Club, Benson, Oxon, England.

Send us a post card today. It is well worth your little trouble.

THAGARD ITALIAN QUEENS BRED FOR QUALITY

Untested queens, each, 1 to 6, $1; 6 to 49, 75c; 49 to 99, 70c; 100 or more, 65c.

THE V. R. THAGARD CO.,
Greenville, Ala.

MISSISSIPPI BRED THREE-BAND ITALIAN QUEENS

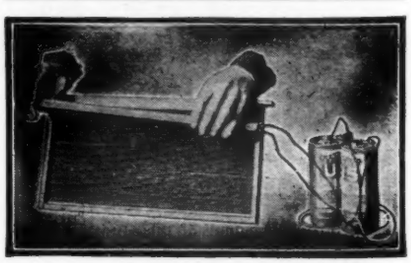
The busy kind. Bred from the l st, under the most favorable conditions.

PRICE AFTER JUNE 15:

Untested ..... 1, $1.25; 10 or more, $1.00 each.
Tested ..... 1, $2.00; 10 or more, $1.50 each.

I may not be able to ship as many as you want, but I guarantee them to be as good as you want.

W. A. BENNETT APIARIES,
Hattiesburg, Miss.



ELECTRIC IMBEDDER

Price without Batteries, $1.00
Not Postpaid.
Weight 1 lb.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

Dadant & Sons, Manufacturers HAMILTON, ILL.

SCOTT QUEENS ARE GOOD QUEENS

MY QUEENS ARE GETTING RESULTS

among my hundreds of honey-producing colonies and for my customers. One writes: "Dear Mr. Scott: please book my order for one-half dozen queens. Those I received from you last season have made 150 lbs. comb honey so far this season. Yours truly." (Name on request.)

UNTESTED GOLDEN OR THREE-BANDED QUEENS

After July 1, one, $1.25; six $7; dozen, $13. Prompt delivery; no waiting.
Pure mating, safe arrival and satisfaction. No disease. Card brings circular.

ROSS B. SCOTT, LAGRANGE, IND.

SUPERIOR FOUNDATION

"BEST BY TEST"

Do not fail to secure our 1922 reduced prices on SUPERIOR FOUNDATION. State quantity desired. We also manufacture Hoffman frames, dovetailed beehives, etc. Quality unexcelled. Prices on request.

SUPERIOR HONEY CO., Ogden, Utah

(Manufacturers of Weed Process Foundation).

BEE SUPPLIES

SPECIAL PRICES ON THE FOLLOWING NO. 2 SECTIONS

100,000 4¼x4¼ 1½ plain at $7 per 1,000.

50,000 4¼x4¼ 1¾ two beeway at $8 per 1,000.

The above are all packed 500 to a crate.

Reduced Prices on Tin and Glass Honey Containers.

Send us a list of your requirements of containers and we will make you prices that will save you money.

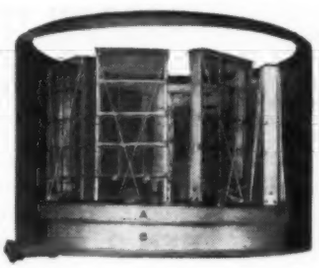
We can make shipment same day order is received.

We carry a complete line of **Everything for the Beekeeper,** and can make prompt shipment.

Write for our catalog.

A. H. RUSCH & SON CO.
REEDSVILLE, WIS.

Lewis Extractors



Lewis-Markle Power Honey Extractor. Tank cut away.

A—Pan over machi... .. B—Bottom of tank.

Made in 4 and 8-frame sizes. Accommodates 2 sizes of baskets, power operation, machinery underneath, no vibration, tank and basket instantly removable for cleaning. A commercial success. Circular free. Address:

G. B. LEWIS COMPANY
WATERTOWN, WIS., U. S. A.

There's a Distributor Near You.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1922 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

Goldens the Best

14 years in business should give you best queens possible. Unt., $1 each, or 6 for $5; 25 or more, 75c each. Virgins, 40c each, or 3 for $1. Satisfaction and promptness is my motto.

R. O. COX, Rutledge, Ala.

Poole's Italian Queens
WILL PLEASE YOU

Why? Because I am breeding from breeders originally obtained from Italy and use every effort to get out queens that will please the customers. I ask only for a trial. Safe arrival and satisfaction guaranteed.

Untested, 1 to 12, 85c each; 12 to 25, 75c each; 25 to 100, 70c each; 100 up, 65c. Tested $2 each.

RUFUS POOLE,
Greenville, Ala.

$797 Buys This 7-Room Home
Price includes lumber, millwork, paint, hardware, roofing, etc. House contains large living room, dining room, kitchen, three bedrooms with closets and bath. Materials cut to fit. Our system makes it easy for anyone to erect this attractive home. Send for special circular No.
THE ALADDIN COMPANY
BAY CITY MICHIGAN

QUEENS! QUEENS!

Large leather-colored, three-banded Italian queens; 10-year selection, bred from honey-gathering; gentle, hardy and long-lived. Price, select untested, 1, $1.25; 6, $6.50; 12, $12. After July 1: 1, $1; 6, $5. Tested $1.50 each. Write for price on large orders. Free booklet "How to transfer, Get Honey and Increase."

J M. GINGERICH, Kalona, Iowa.

PACKAGE BEES AND QUEENS

We specialize on Three-band Italians Bred for Business.

Balance of the season we will furnish a 2-pound package of our hustlers with a select untested queen, for $4.75; 25 or more, $4.50 each. No queens, except with packages, before July 1. Prices after that date, from our best breeding queens:

Untested, $1.00 each; $10.00 per dozen; $75.00 per 100.

Tested, $1.50 each; $15.00 per dozen.

Only one grade of queens shipped—Select. Promptness and efficiency our motto.

CANEY VALLEY APIARIES, Bay City, Texas

J. D. YANCEY, Mgr.

BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

GOLDEN ITALIAN QUEENS

	Nov. 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12
Untested	$2.00	$ 9.00	$17.00	$1 50	$ 8.00	$14.50
Select Untested	2.25	10.50	18.00	2.00	9.50	16.00
Tested	3 00	16.50	30.00	2.50	12.00	22.00
Select Tested	3.50	19.50	36.00	3.00	16.50	30.00

BREEDERS $12.50 TO $25.00

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed

NO NUCLEI, FULL COLONIES OR POUND PACKAGES

BEN G. DAVIS, Spring Hill, Tenn.

BOOKED to capacity on early May orders. Heavy discounts on introduced laying-enroute-to-you queens with frames, and pounds after May 25.

JES DALTON,
Bordelonville, La.

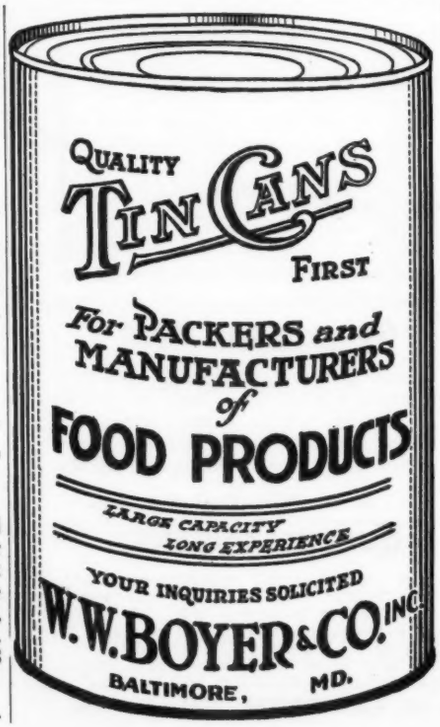
Will have Golden Italian Queens for delivery after May 25, untested $1.50 each; 12, $14.50; tested, $3; after July 15 untested $1.25.

T. J. TALBOTT & BRO.
409 Marx St., South Richmond, Va.

THE BOOK YOU SHOULD BUY

C. P. Dadant has recently revised and rewritten Langstroth's classic book on the Honeybee. The book now contains the best from three widely known writers on beekeeping, Langstroth, Charles Dadant and C. P. Dadant. The new edition has 448 large size pages and sells for $2.50.

American Bee Journal, Hamilton, Ill.



British Columbia Beekeepers

The Beekeepers' Association of British Columbia has an elabora e program of demonstrations, etc., outlined for the summer. The details of the announcement occupy nearly a page in the June issue of "Country Life." The demonstrations are to be conducted by M. A. Kier and W. Hugh, well-known beekeepers of the northwest. There are also a group of district advisers who will assist in arousing interest in the work of the organization. An effort will be made to secure large displays of the products of the apiary at the Vancouver exhibition, which opens on the 19th of August.

A Useful Publication

To those who wish to identify the trees, shrubs and vines that they may find, either in the woods or in ornamental plantings, a little book by Dr. William Trelease, of the University of Illinois, will prove helpful. The title is "Plant Materials of Decorative Gardening" and the subject matter covers the woody plants. There is much interest on the part of many beekeepers in learning more concerning those plants which are the source of nectar, and to such we recommend this book. It has a flexible cover and is just the right size to slip into the coat pocket. It contains 177 pages and may be secured from the author at Urbana, Ill. The book is not illustrated, but identifications are made by means of a descriptive key. Price $1.

The Honey Should Sell Readily

Newspapers are carrying a story to the effect that alcoholic honey is the latest from Clatsop County, Oregon. According to the story operators of stills have dumped their fermented mash in isolated spots where it has been found by the bees and as a result the contents of the hives are highly flavored.

Wedding Bells

Prof. B. A. Slocum, State Bee Specialist for Washington, and Miss Esther V. Potts, of Madison, Wis., were married in Pullman, Wash., Monday, July 3, 1922 at 8 p. m. Miss Potts made the trip from Madison to Pullman in order that the marriage ceremony might be performed in their new home city. Prof. Slocum has been in the State of Washington for over a year, and has made many friends among the beekeepers. The happy couple have the hearty congratulations of a host of friends.

George W. York.

Who Can Beat It?

Dr. E. E. Sterner, of Wrightsville, Pa., writes that he secured 22[illegible] pounds of surplus comb honey from one colony this season. The honey was sold at 40 cents and netted him $89.60, which is rather a good showing from one colony. We would like to know whether this is not a record return from one hive of bees, and in case anyone else can show a bigger one, would like to hear about it.

RE-QUEEN WITH FOREHANDS 3-BANDS

THEY SATISFY, WHY?

Because they are guaranteed to be as good as money can buy. Not a cheap queen, but a queen of the finest quality at a cheap price. Every queen guaranteed to reach destination in first-class condition, to be purely mated and give perfect satisfaction, or money back. Orders filled by return mail.
Untested, 1 to 25, 90c each; 25 to 50, 80c each; 50 to 100, 75c each.

Selected untested, $1 each. Tested, $1.75 each.

Better queens for less money.

N. FOREHAND, Ramer, Alabama

QUEENS FOR SALE—ROOT STOCK

We are now booking orders at the following prices:

Untested, $1.00 each, $10.00 per doz., $70.00 per 100.

Tested, $1.50 each, $14 per doz.

Breeders, $5.00 each.

All orders filled promptly after June 15.

I wish to announce to the beekeepers of the southeastern states that I have taken over the A. I. Root Co. branch house and have everything the beekeeper needs, and all orders will be filled promptly from Savannah, Ga. Satisfaction and efficient service will be given all.

A. R. IRISH, 126 Bay St., Savannah Ga.

HONEY

We are in excellent position to serve beekeepers who do not produce enough honey to supply their trade We have a big stock of fine table honey of various grades always on hand.

In 60-lb. Tins, Crystallized

Water white orange	15c	Extra L. A. sage	12c
White sage	14c	Buckwheat	10c

GLASS AND TIN HONEY CONTAINERS

2½-lb. cans ---- crates of 100, $4.50
5-lb. pails (with handles), 1 doz. reshipping cases ---- $1.00 case; crates of 100, $7.00
10-lb. pails (with handles) ---- crates of 50, $5.25
60-lb. tins, 2 per case, new, $1.20 case; used, 25c.

White Flint Glass, with Gold Lacquered Wax Lined Caps

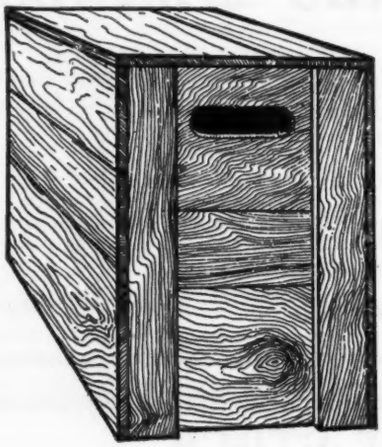
8-oz. honey capacity ---- $1.50 per carton of 3 doz.
16-oz. honey capacity ---- $1.20 per carton of 2 doz.
Quart, 3-lb., honey capacity ---- .90 per carton of 1 doz.

HOFFMAN & HAUCK, Inc., Woodhaven, New York

This is the Selling Season

A good label helps your sale. Send for label catalog

AMERICAN BEE JOURNAL, HAMILTON, ILL.



TIN CANS

5-GALLON SQUARE CANS (holding 60 lbs. honey net).

Our 5-gallon cans are put up in strong cases. Prices are slightly higher than for lighter cases, but are easily worth the difference.

FRICTION TOP PAILS

Put up in cartons of 50 each. Dust proof, light and easily handled.

Cases holding 6 10-lb., 12 5-lb. pails and 24 2½-lb. cans are made with ¼-in. heads, ⅜-in. top, bottom and sides. These are substantial and will **ship safely when filled with honey.**

PRICES

5-gal. cans, 1¾ cap, 1 per case	$ .75
5-gal cans, 1¾ cap, 2 per case	1.20
2½-lb. cans, cartons of 100	$4.00 per hundred
2½-lb cans, cases of 24	1.20 per case
5-lb. pails, cartons of 50	6.30 per hundred
5-lb. pails, cases of 12	1.05 per case
10-lb. pails, cartons of 50	8.95 per hundred
10-lb. pails, cases of 6	.85 per case

All cans shipped f. o. b. Hamilton, Ill., or Keokuk, Iowa. No waiting for shipment from factory. Five per cent discount on orders for tin cans amounting to $100 or over at above prices.

COMB-HONEY CORRUGATED SHIPPING CASES

We are prepared to furnish corrugated cartons for shipping comb honey as described in the June issue of the American Bee Journal. Put up in bundles of 10 cartons, $2.50 per bundle. Furnished for 24 4¼x4¼ x1⅞ sections **only.**

QUEENS

Untested Italian queens for August shipment, each, $1.25; 6, $6.50; 12, $12. Write for special prices on lots of 50 or more.

Mail all Orders to

DADANT & SONS, HAMILTON, ILL.

Crop and Market Report

Compiled by M. G. Dadant.

Owing to the absence of M. G. Dadant from the office, this month's report is compiled by members of the staff who are not in touch with market conditions, and we find it somewhat difficult to reconcile the apparently conflicting reports from the same or nearby localities.

It is very evident that local rains have played an important part in this season's crop and that in a good many cases a distance of only a few miles has made the difference between a good crop and a partial failure. In the eastern half of the United States it is apparent that the greater part of the season's crop is already harvested, although as yet market conditions are very uncertain. While in a few localities the crop has been a failure, on the whole, the quantity of honey ready for the market is perhaps above the average.

THE YIELD

From California come reports of from one-half crop to better than an average, depending upon the location. In nearly all parts of the state prospects are reported as very good for such portion of the crop as is still to be harvested.

Texas reports a very light crop throughout the state, in most cases not much above 10 per cent of normal, with prospects poor for the remainder of the season. Most of Georgia and Florida report a light crop, although in a few localities a full crop is reported. Prospects for the remainder of the season in that location are also greatly varied. In the region from Kentucky to Alabama, Mississippi and Louisiana, most of the reports are to the effect that a very fair crop has been harvested, although in some sections failures are reported. The reports are that prospects for the remainder of the season are mostly very good. Most of the reports from Ohio and Indiana are of very good crops and good prospects for the remainder of the season.

Wisconsin reports 75 to 80 per cent of a normal crop so far harvested, with only fair prospects for the rest of the season. Michigan reports a very good crop, with good prospects. Minnesota, a light crop with rather poor prospects for the fall flow. Missouri and Kansas report an unusually good early honey flow with fairly good prospects for fall. Iowa is very spotted, with some very good reports and some very poor ones. In the mountain regions the same conditions prevail, with some sections reporting almost entire failure, while others report bumper yields. In much of that region the principal crop comes in August, and it is too soon to tell what the harvest will be.

INCREASE

It is evident that a surprisingly small amount of increase has been made the past season, taking the country as a whole. Most of the reports of increase in quantity come from Ohio, New York and New England. Over a large section of the country it appears that the increase has hardly been sufficient to sustain winter losses and that beekeepers will start another season with a less number of bees than was the case this year.

MARKET CONDITIONS

Much uncertainty is manifested by our reporters as to market prices for this season's crop. The fact of the matter is that not enough sales have been made to really establish a price, and both buyers and sellers are in most cases waiting to see what may happen. Since nearly all reports indicate that last year's crop has been cleaned up, there is no reason to expect much of a slump in prices. California prices reported vary all the way from 6c to 9c for extracted honey in car lots and from 10c to 15c at retail. There are a number of reports of 8c to 9c for good white honey in large lots. Most of the Texas crop has already been sold with the prevailing prices for extracted honey seeming to run from 7c to 12½c at wholesale and from 12½c to 17½c at retail. There is very little information concerning prices in the southeast, although one reporter states that tupelo honey in barrels is selling at 5c per pound, and reports from the sweet clover belt in Mississippi report 10c as the wholesale price for extracted honey. Most reports from this region indicate that there is very little movement as yet and not much demand for honey in large lots. In the Northern States east of the Mississippi, the prices seem to be somewhat more stable, with light extracted honey selling from 12c to 14c wholesale, and from 15c to 25c retail. Comb honey is reported as selling at from $4.50 per case and upward at wholesale and retailing from 35c to 45c per section. In the Rocky Mountain States, of course, such prices as have been made are on last year's honey.

BEESWAX

The trend of prices for beeswax is upward. The large stocks of foreign wax which were dumped on American markets following the termination of the war are gradually being reduced and are no longer selling at the extremely low prices of the recent past. There is an increasing demand for light colored domestic wax at better prices.

SUMMARY

Although the indications point to a very good crop taking the country as a whole, the fact that the market is nearly bare of last year's honey indicates that the new crop should move at a very fair price. The reduction in freight rates is favorable to producers. While there will undoubtedly be some attempt on the part of a few large buyers to force the market down, we believe that all of this year's crop can be moved at practically last year's prices before another crop can be produced.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue: If intended for classified department it should be so stated when advertisement is sent.

BEES AND QUEENS

NEW HONEY — Atwater offers extra nice product of heavy flow.

DEPENDABLE QUEENS—Golden or three-banded, after July 1, one, $1.25; six, $7; 1 dozen, $13. Safe arrival and satisfaction guaranteed. Card brings circular.
Ross B. Scott, La Grange, Ind.

1903—DARROW'S QUEENS EXCEL—1922. See page 381.

LOW PRICES, high quality. For balance of season select bright three-band Italian queens, 85c each; three to six, 70c; $8 per dozen. Our queens are second to none in gentleness, prolificacy and hustling; guaranteed to arrive in first-class condition and to give satisfaction.
J. L. Morgan,
Tupelo Honey Co., Columbia, Ala.

PURE ITALIAN QUEENS by return mail; also a limited number of silver gray Carniolans, $1 each, $10 per dozen. For larger number write. Send all orders for queens during August and September to my breeder, M. G. Ward, Lathrop, Calif. All otner correspondence to me direct.
J. E. Wing, 155 Schiele Ave., San Jose, Cal.

HOOSIER-BRED QUEENS — Three-banded Italians. Untested $1.50 each, 6 for $8.50; select untested, $2 each, 6 for $11.50; tested $2.50 each; select tested $3 each. Safe arrival and satisfaction guaranteed. Circular free on request.
Wm. R. Stephens, Wingate, Ind.

YOUR LAST CHANCE this year to get the best queens obtainable. Our new method produces queens that are in a class by themselves. They have no equal. Circular free. Untested $1, tested $2.
F. M. Russell, Roxbury, Ohio.

SELECT day-old queens, 10, $4 in Thompson safety cages; Benton 5c less; untested, $1.25. Superior Italian stock.
James McKee, Riverside, Calif.

"WHAT THE BUYER HAS THE RIGHT TO EXPECT"—A well-known authority on beekeeping generally, says "When a man sends his money for a queen in response to an advertisement, he has the right to expect that no inferior queens be sent, even th ugh he buy untested stock." I am doing my own work and producing what the buyer has the right to expect. Prices for fall shipments: 1 untested, $1; 12, $10. In larger quantities write for prices. M. G. Ward, Lathrop, Calif.

GOOD QUEENS at a low price. I have only two grades of queens, that is, tested and untested. I send out good looking and good laying queens of the 3-band strain. If you are not pleased with them, send them back and get your money. One queen, $1.00; 25 or more, 90c each; one tested queen, $1.25; 25 or more $1.15 each.
W. H. Moses, Lane City, Texas.

UNSURPASSED ITALIAN QUEENS—August and September, untested, 1, $1; 6. $5.75; 12, $11; 50, $45; 100, $85. Tested, 1, $2; 6, $11. Every queen is mated and laying before she is mailed.
J. D. Harrah, Freewater, Ore.

CARNITALIAN—What's a Carnitalian? A blended bee. A combination of the two finest sorts of bee; the Carniolan, from the Julian Alps, the gentlest, hardiest and most prolific bee known; the American-Italian, obtained by fifty years of skilled breeding. Golden drones have been crossed and recrossed with Carniolan stock until banded drones were secured. Note that in the CARNITALIAN strain the Carniolan blood was introduced only through the female side. My breeding mothers were imported direct from the famous Carniolan, Jan Strgar—the CARNITALIAN was not built on doubtful home-raised stock. CARNITALIAN queens will be put into commerce next season, 1923. John Protheroe,
Rustburg, Va.

WARRANTED PURE MATED Italian queens in special sure-introducing cages. First order, $1.25 each; 30 years experience in queen rearing. No honey in queen candy.
Daniel Danielsen, Brush, Colo.

FOR SALE—Golden Italian queens, 1 untested, $1.00; 6 for $5.00. Tested, $2.00.
J. F. Michael, Rt. 1, Winchester, Ind.

CONNECTICUT QUEENS—Highest grade 3-banded Italians. Untested, $1 each; 6, $5.50; 12, $10; 50, $40; 100, $75 Two pounds bees with queen, $4; three pounds with queen, $6. Day-old virgin queens, 40c each; 3 for $1. First class stock and satisfaction guaranteed. No disease here. Conn. Valley Apiaries.
A. E. Crandall, Berlin, Conn.

TRY MY Caucasian or Italian 3-frame nuclei at $5.50 each with tested queen; with untested queen, $5 each. Tested queens, $1.50 each; untested, $1.00 each. Italians by return mail. No disease. Peter Schaffhauser,
Havelock, N. C.

FOR SALE—Italian queens. Untested, $1.25 each; 6, $7.00; 12, $13.50. Tested, $2.00. Safe delivery and satisfaction guaranteed.
R. B. Grout, Jamaica, Vt.

FOR SALE—Golden Italian queens. Untested, $1.00; 6 for $5.40; 12 or more, 80c each. Tested, $1.40 each. Good honey gatherers, hardy and gentle. No disease; safe arrival. Hazel V. Bonkemeyer,
Rt. No. 2, Randleman, N. C.

CALIFORNIA QUEENS—100 per cent perfect; large, vigorous Italians, guaranteed layers. They are making a hit, as proven by repeated orders and letters of appreciation. Am building a name and reputation; try at least one; you will surely want more then. Prices reduced. Select untested, 1, $1; 6, $5.50; 25, 90c each.
H. Peterman, R. F. D., Lathrop, Calif.

REQUEEN with Simmons Queens. Prices reduced.
Fairmont Apiary, Livingston, N. Y.

"FLORIDA FIRST" QUEENS—Prices July to November: Select untested, $1.25; 5 for $5. Select tested, $2; 5 for $9. Bright three-banded Italians; gentle, vigorous and prolific. Bred right. Indian River Apiaries, Wilson, Fla. Circular on request.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, after July 1: $1.25 each; 12, $1.00 each. Special prices on larger orders. Send for circular.
J. H. Haughey Co., Berrien Springs, Mich.

WE ARE OFFERING our bright Italian queens at 85c each, $9.00 per dozen, $65 per 100 in 100 lots. Safe arrival, pure mating and reasonable satisfaction guaranteed in United States and Canada.
Graydon Bros., Rt. 4, Greenville, Ala.

ITALIAN BEES—Full colonies with Italian queen, $15; two for $25. Three-frame nucleus with queen, $6.50. Three-pound package with queen, $6.50. No disease. Safe arrival and satisfaction guaranteed.
Van's Honey Farms,
Van Wyngarden Bros., Props.,
Hebron, Ind.

SWARTS' AMERICAN GOLDEN QUEENS produce golden bees of highest quality. Untested, $1.25 each, 6 for $6.50; tested, $3.00. Satisfaction guaranteed
D. L. Swarts, Rt. 2, Lancaster, Ohio.

FOR SALE—Golden Italian queens; untested, $1, 6 for $5.40; 12 or more, 80c each; tested, $1.50; select tested, $2.50. No disease of any kind; bees very gentle and good honey gatherers.
D. T. Gaster, Rt. 2, Randleman, N. C.

SPICER'S 3-band Italian queens by return mail. If you are interested in improving your stock and getting larger returns from your bees, head your colonies with these queens. Untested, $1.00; 6, $5.50; 12, $10.00. Tested, $2.00 each.
Rob't B. Spicer, Wharton, N. J.

ELTON WARNER'S QUALITY QUEENS—Progeny of his famous Porto Rican breeding stock. Write for price list; 20 per cent off after June 30.
Elton Warner Apiaries, Asheville, N. C.

3-BANDED QUEENS, $1.00 each. Bees in any way desired. Write for prices.
Curd Walker, Scotts Station, Ala.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
86 Dey St., New York City.

QUEENS—3-banded Italian; also goldens; the thrifty kind. Untested, 1, $1; 6, $5.50; 12, $10. Tested, 1, $2; 6, $11.50; 12, $22. Select tested,1, $3; 6, $12.50; 12, $24. Write for prices after July 1. No disease. Safe arrival and satisfaction guaranteed.
P. O. Watkins, Collasaja, N. C.

PINARD'S QUALITY of Root's strain of bees and queens. Virgins, 50c. Untested queens, $1.25 each; larger lots, write. Circular free. After July 1, 10 per cent discount.
A. J. Pinard, 440 N. 6th St., San Jose, Calif.

BOOK YOUR ORDERS for QUEENS now—Goldens, $2; tested, $3; banded, $1.50; tested $2.50; six or more, 10 per cent less.
Clover Leaf Apiaries, Wahoo, Neb.

THREE-BANDED ITALIAN QUEENS—Untested, June, $1.15 each; six for $6.50. After July 15, $1 each; six for $5.50. No questionable methods, no queenless stunts, no swarm boxes, no dry grafting, no hatching into cages, no baby nuclei. I rely on supersedure conditions in big queenright colonies. Matings from strong 3-frame nuclei,
John Protheroe, Rustburg, Va.

WE SPECIALIZE on three-band Italians, bred for business. See ad. elsewhere for prices.
Caney Valley Apiaries,
J. D. Yancey, Mgr., Bay City, Texas.

HEAD YOUR COLONIES with Williams' Italian queens of quality and get more pleasure and profit from your bees. They produce bees that are gentle, hardy and hustling. Descriptive circular free. Select untested 75c each.
P. M. Williams, Ft. Deposit, Ala.

"SHE-SUITS-ME" Queens, line-bred Italians, $1.50 each; 10 to 24, $1.30 each; 25 to 49, $1.25 each; 50 to 99, $1.20 each; 100 queens, $115. See page 38 of January number.
Allen Latham, Norwichtown, Conn.

QUEENS—Three-band, special price for June and July. To decrease our nuclei through summer we will ship our pedigreed strain of honey-getting 3-band queens at $1 each.
Dr. White Bee Co., Sandia, Texas.

FOR SALE—My 1922 Golden Italian queens, the hustling kind, second to none. Satisfaction guaranteed. Price, untested, $1 each, $10 per doz., or $80 per 100. Tested, $1.75 each. After June 15, 90c each, or $9 per doz.; $70 per 100. Tested, $1.50 each.
E. F. Day, Honoraville, Ala.

BURLESON'S three-banded Italian Queens. For balance of 1922, $1 each or $90 per 100. Safe arrival and satisfaction guaranteed. Send all orders, together with money, to my manager, J. W. Seay, Mathis, Texas.
T. W. Burleson, Waxahachie, Texas.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

QUEENS, QUEENS, from my old leather-back Italian queen. Ready to ship after April 15. She is the head of my apiaries. Untested, $1.25; tested, $2.50; select tested, $3.00. More than 12, prices on application. Guaranteed safe delivery. O. O. Wilder & Son,
Rt. 2, Box 14, Corpus Christi, Texas.

TRY ACHORD'S Package Bees and Queens. Price list by return mail.
W. D. Achord, Fitzpatrick, Ala.

GOLDEN QUEENS, GOLDEN—1923 price: untested, one, $1.25; doz., $12. Select untested, one, $1.50; doz., $15; tested, one, $2.50, doz., $27.50. Pure mating and safe arrival guaranteed in United States and Canada. Booking orders now.
Tillery Bros., Georgiana, Ala.

FOR SALE—Early package bees, nuclei and queens. Shipping season from March 1 to June 1. We handle 1,800 colonies. No disease. Loveitt Honey Co.,
602 N. 9th Ave., Phoenix, Ariz.

THREE-BANDED ITALIAN QUEENS—Select untested, $1 each, $9 per dozen; 1-lb. package with queen, $3; 2-lb. package with queen, $5. Safe arrival and satisfaction guaranteed.
W. T. Perdue & Sons, Rt. 1, Ft. Deposit, Ala.

QUEENS—We are prepared to furnish queens in quantities promptly. These queens are reared for us by the most reliable breeders. Write for prices.
Dadant & Sons, Hamilton, Illinois.

FOR SALE—Leather colored Italian queens, tested, until June 1, $2.50; after, $2. Untested, $1.25; 12, $13. Root's goods at Root's prices. A. W. Yates,
15 Chapman St., Hartford, Conn.

"ACE-HIGH" three-banded Italians hustle. Bred from excellent stock. No effort or expense spared to produce quality. No disease. Prices reasonable. Send for descriptive circular *now*, before you forget.
A. G. Van Ronzelen,
Route 2, Box 212, San Antonio, Texas.

BEES AND QUEENS at reduced prices. Cypress hives for sale. Write for terms.
Otto Diestel, Elza, Ga.

WHEN it's quality, service and satisfaction, you want to try Pinard.
A. J. Pinard, 440 N. 6th St., San Jose, Calif.

HARDY ITALIAN QUEENS, $1 each.
W. G. Lauver, Middletown, Pa.

DIEMER QUEENS—I make a specialty of good three-banded Italian queens at $1 each.
J. F. Diemer, Liberty, Mo.

CARNIOLAN QUEENS—None better. Select tested, $2.50 each; select untested, $1.25 each. Also choice Italians, same prices. Send for circulars.
Geo. W. Coltrin & Son, Mathis, Texas.

LARGE, HARDY, PROLIFIC QUEENS—Three-band Italians and goldens. Pure mating and safe arrival guaranteed. We ship only queens that are top-notchers in size, prolificness and color. After June 1, prices as follows: Untested $1.25 each, 6 for $7; select untested $1.50 each, 6 for $8.50; select tested $3 each. Special prices on larger quantities. Queens clipped free on request. Health certificate with each shipment.
Buckeye Queens, Zoarville, Ohio.

HONEY AND BEESWAX

NEW HONEY — Atwater offers extra nice product of heavy flow.

FOR SALE—Clover and amber honey in 60-lb. cans, 2 in a case; new crop. Also 9 cases amber honey, 1921 crop. Sample and prices on request. H. A. Meyer, Rt. 3, Westpoint, Neb.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons, Hamilton, Ill.

FOR SALE—Choice clover extracted honey, packed in new 60-lb. cans. Write for prices, stating quantity desired.
J. D. Beals, Oto, Iowa.

CHOICE new white clover honey in new 60-lb. cans, 120 lbs. net $16; sample 20c.
Edw. A. Winkler, Rt. 1, Joliet, Ill.

FOR SALE—50,000 lbs extra fancy white clover honey. Price: One 60-lb. can, 15c a pound; two 60-lb. cans, 15c a pound. Sample bottle by mail, 10c.
J. M. Gingerich, Kalona, Iowa.

HONEY FOR SALE—In 60-lb. tins, water white orange, 15c; white sage, 14c; extra light amber sage, 12c; New York State buckwheat, 10c, for immediate shipment from New York. Hoffman & Hauck, Inc.,
Woodhaven, N. Y.

HONEY—Atwater sells fine alfalfa-clover honey, extra strong cases, case of two 60-lb. cans, $12; case of twelve 5-lb. pails, $7.80, all f. o. b. here. Ten-lb pails all sold out; plenty of the others on hand.
E. F. Atwater, Meridian, Idaho.

FOR SALE—Several tons dark and amber baking honey; new crop comb honey ready about July 10. H. G. Quirin, Bellevue, Ohio.

SUPPLIES

NEW HONEY — Atwater offers extra nice product of heavy flow.

EXTRACTOR BARGAINS—Reversible, extra Jumbo baskets, $20; Novice, like new, $20.
Lorenzo Clarke, Winona, Minn.

FOR SALE—100 deep extracting frames with comb. Not standard. Work well on 10-frame hives. C. E. Keister, Orangeville, Ill.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

FOR SALE

NEW HONEY — Atwater offers extra nice product of heavy flow.

1923—DARROW'S QUEENS EXCEL—1922. See page 381.

FOR SALE—Three-banded Italian queens; untested $1 each, $10 per dozen. Tested queens, $1.50 each; 2-frame nuclei with untested queen, $4.
Jul. Buegeler, New Ulm, Texas.

FOR SALE—One Cowan reversible two-frame extractor, No. 15, used five hours. All O. K. First check for $20 gets it.
J. V. Higgins Florence, Ala.

FOR SALE—No. 15 Cowan extractor, practically new, $25.
T. G. Bell, Bedford, Ind.

EIGHT swarms of bees in 10-frame standard hives, $8 per hive, f. o. b.
Newt. Gilmore, White Pigeon, Mich.

FOR SALE—25 to 50 colonies of bees, 10-frame Langstroth hives; pure Moore strain; $8 per colony. The Associated Apiaries,
Petoskey, Mich.

ITALIAN BEES and standard supplies at half price. F. Olson,
1923 Grand Ave., St. Paul, Minn.

FOR SALE—350 colonies of bees with complete extracting equipment, including power extractor, steam boiler, and auto truck, with or without 1922 crop.
Scott McClanahan, Rt. 1, Parma, Idaho.

FOR SALE—170 colonies high class Italian bees in modern 10-frame Langstroth hives, painted, full sheets wired perfect combs; about 50 in Jumbo hives. All equipment for comb and extracted honey and queen rearing; four colony winter cases. Clover-basswood location; fine home market. Correspondence solicited. Other information on request. Come and see.
Address E. L. Hall, 1706 Torres Ave.
St. Joseph, Mich.

FOR SALE—White and amber extracted honey; also comb honey. Write for prices. State quantity wanted.
Dadant & Sons, Hamilton, Illinois.

ROBBING PREVENTED or stopped. J. A. B. entrance guards do the trick. Return mail. one $1. John A. Bloomgren,
Ridgway, Pa.

FOR SALE—Modern standard make typewriter, $50; or will trade for bees, queens, honey, or offer. Mrs. Ida Harris,
Box 707, Tuscaloosa, Ala.

FOR SALE—Good second-hand 60-lb cans, two cans to a case, boxed, at 60c per case f. o. b. Cincinnati. Terms cash.
C. H. W. Weber & Co., 2163 Central Ave.
Cincinnati, Ohio.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah

WANTED

NEW HONEY — Atwater offers extra nice product of heavy flow.

WILL BUY comb and extracted honey; state price. James Kosar,
9121 S. Western Ave., Chicago, Ill.

WANTED—A Novice two-frame extractor.
Charles R. Austin, Altona, Ill.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons Hamilton, Ill.

WOULD LIKE TO BUY some more good honey, some beeswax and also maple syrup. Paul Thomae, 1156 Third St., Milwaukee, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—Honey, section, bulk comb and extracted. Elton Warner, Asheville, N. C.

WANTED—Honey, section, bulk comb and extracted. W. A. Hunter, Terre Haute, Ind.

SITUATIONS

NEW HONEY — Atwater offers extra nice product of heavy flow.

WANTED—Man for comb honey production. State age, wages expected, and experience.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—One experienced man, and students or helpers, in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

REAL ESTATE

NEW HONEY — Atwater offers extra nice product of heavy flow.

FOR SALE—Account of sickness must sell 10-acre farm and 150 colonies bees; 100 colonies with extracting supers, balance comb. Supers for 100 more colonies; 300 aluminum combs, two extracting houses, 16x24 basement for wintering, shed 16x36. One of the best clover and raspberry locations in Michigan. Average for 23 years more than 125 pounds per colony. Gravel roads; one-half mile to school, store, churches, etc; 10 miles to Evart, 9 miles to Marion. No bees within 5 miles. Retail trade to tourists. Clover land in lake region.
H. L. Leach, Rt. 1, Marion, Mich.

FOR SALE OR RENT—My bee and fruit ranch, Jackson County, Iowa, near Sabula. Splendid clover and buckwheat region. Four acres, small house, stable and out buildings. Price $1,600. Terms if desired. Possession November, 1922.
A. R. Coover, Gladbrook, Iowa.

MISCELLANEOUS

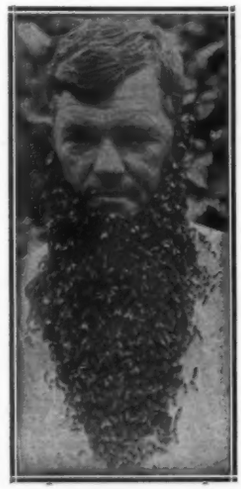
NEW HONEY — Atwater offers extra nice product of heavy flow.

PUSH-IN COMB INTRODUCING CAGE, 35c; 3 for $1. It will do the business. See advertisement in April number.
O. S. Rexford, Winsted, Conn.

QUEENS

Write for our catalog of high-grade Italian Queens. Pure mating and safe arrival guaranteed.

Prices for the Remainder of the Season:



1 to 4, inclusive $2.00 each

5 to 9, inclusive $1.95 each

10 or more $1.90 each

Breeders $10.00 each

Introducing cages 75c each

JAY SMITH, Route 3
VINCENNES, IND.

PACKAGE BEES

For Spring Delivery

Write for prices and circular

J. E. WING,

156 Schiele Ave., San Jose, Calif.

Motts' Northern Bred Italian Queens

All selected queens this season, after July 1, $1 each; select guaranteed pure mated or replaced free, $1.50 each; select tested, $2.50; virgins, 60c each.

Plans "How to Introduce Queens" and Increase," 25c.

E. E. MOTT, Glenwood, Mich.

ATTENTION, PRODUCERS!

NEW HONEY CROP

We are ready to receive your new crop advices sending us your samples and state price wanted, how packed and quantity can ship. Terms cash on arrival.

HOFFMAN & HAUCK Inc., Woodhaven, N. Y.

REQUEEN NOW IF YOU CAN

Right now is the time to begin your plans for securing the maximum crop of honey next season.

Requeening with young prolific queens of a known honey-gathering strain is one of the most important factors in being a successful honey producer. Young, prolific queens introduced now will mean two things: First, strong colonies to go into winter quarters. Second, strong colonies to gather next season's crop of honey.

For more than 50 years we have been breeding up to the Root Quality Queens and Bees. We do not believe that better bees or queens are reared anywhere in the world today. What we try to do is to rear THE BEST.

We breed queens with special view to the honey gathering quality of their bees. We have had this one chief purpose in breeding constantly in mind all these years. We have it uppermost in our minds today.

JULY 1 TO NOVEMBER 1:

	1 to 9	10 to 24	25 to 49	50 to 99	100 or more
C312000—Untested	$1.50 each.	$1.40 each.	$1.35 each.	$1.25 each.	$1.15 each.
C313000—Select Untested	2.00 each.	1.90 each.	1.80 each.	1.70 each.	1.60 each.
C314000—Tested	2.50 each.	2.35 each.	2.25 each.	2.10 each.	2.00 each.
C315000—Select Tested	3.00 each.	2.85 each.	2.70 each.	2.25 each.	2.40 each.

Note the large saving to be made by taking advantage of our low prices on quantity lots.

OUR GUARANTEE ON QUEENS: We guarantee safe arrival of queens sent in mailing cages. We agree to refund the money or replace the queen if the one first sent arrives dead; provided the beekeeper receiving the dead or unfit queen returns her at once and in her own shipping cage, properly marked with name and address of sender. No delay in returning the queen can be permitted. This guarantee applies only on queens sent to customers in the United States and Canada.

Mail all queen and bee orders direct to Medina, or to our nearest branch office.

THE A. I. ROOT COMPANY, WEST SIDE STATION Medina, O., U. S. A.

"GRIGGS SAVES YOU FREIGHT"

TOLEDO, OHIO

BEE SUPPLIES ARE ADVANCING with lumber. Why not lay in your stock now at Old Prices? Send for our Special BIG DISCOUNT SHEET. This will save you money. **Honey Shipping Cases** and **Pails** ready for quick shipment. Extractors, Uncapping Cans and Storage Tanks, all sizes, at Lowest Cash Prices.
We carry both LEWIS and ROOT Goods. Specify which you wish. Free Catalog of either make sent upon request.

HONEY WANTED in exchange for Supplies. NEW CROP ONLY.

GRIGGS BROS. CO., TOLEDO, OHIO

GRIGGS SAVES YOU FREIGHT

64 cts. UNTESTED QUEENS

MR. BEEKEEPER

Prompt Service and Satisfaction a Specialty

If you want the best quality that is possible to produce, at the lowest price possible to produce, here is the place to order your queens. I positively guarantee THAT NO BETTER QUEENS CAN BE BOUGHT, NO MATTER WHERE YOU BUY THEM. These queens are very resistant to bee paralysis, also foulbrood. When you order a tested queen or a select untested from me I don't go out in the yard and cage the first thing I come to and send it to you, like 50 per cent of the queen breeders do. I send out what I advertise, and I stand behind every queen I ship. If they don't give you entire satisfaction, all you have to do is just return them at my expense and I will cheerfully refund your money. Order a few packages of bees and get those weak colonies of yours in shape for the honey flow. I am prepared to ship by return express. The price is right. A limited number of very fine selected tested queens that would make fine breeders, at $4.00 each. Safe delivery and satisfaction positively guaranteed.

PRICES

	1	6	12	100
Untested	$ 85	$ 4.80	$ 9.00	$ 64.00
Select untested	1.00	5.70	10.80	85.00
Tested	2.00	10.50	19.60	150.00
Select tested	2.50	14.40	27.60	175.00

POUND PACKAGES WITH SELECT UNTESTED QUEENS

1-lb. packages....1 to 12, $2.35 each; 12 or more, $2.30 each 2-lb. packages....1 to 12, $3.85 each; 12 or more, $3.80 each

Shipment made by return express. Write for Prices on Package Bees for the season of 1923.

THE FARMER APIARIES, Ramer, Alabama

BUMPER

CROPS

QUALITY COUNTS—Not the Price

BREEDING WILL TELL

GUARANTEED

SATISFACTION

Queens from Extra Selected Breeders. **Proven by Use. Highly Prolific. Hardy and Disease Resisting.**

Untested, $1.50; 12 or more, $1.25; 100 or more, 90c.
Tested, $2.50; 12 or more, $2.00.

Prompt replacements. Fair dealing. We rigidly adhere to the above.

BOX 585 **THE SOUTHLAND APIARIES, Hattiesburg, Miss.**

SUPERIOR ITALIAN QUEENS

We have 2,000 nuclei in operation and our production of queens should be over 100 queens per day, every one of which we will **Guarantee to be Satisfactory,** and we want to replace all that are not. We have been selling on that guarantee, and our replacements have been few; they must be giving satisfaction.

Untested ---------- One, $1.00; ten or more, $ .75
Tested ---------- One, $1.75; ten or more, $1.50

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

QUEENS

Nordan's Three-Banded Italian Queens and Bees. (Three-Banded only)

BEEKEEPERS

If you have one colony or five thousand, I want you to give my Superior Strain of Three-banded Italians a trial. I am fixing the price right so you can. I am not a new man come out. I have been in business almost all of my life, for honey production and improving my strain. I have selected and bred my strain from the finest mothers in my yards, which were selected for all the good qualities for over a quarter of a century. I have spared neither labor nor money in developing my strain, until now I can put queens and bees on the market which I know are surpassed by none; and I guaranteed that money cannot buy any better in the United States. When you introduce my queens, beekeepers, you can feel assured you have bees that cannot be surpassed by any in U. S. A., which are backed by over a quarter century of improving and selecting from the finest mothers and mated to colonies drones that are selected. NOTICE! My strain is guaranteed immune to bee paralysis. We have found the foundation of bee paralysis is in the queen, and now, after years of selecting and testing, I guarantee my strain resistant to it. Bee paralysis is greatly over the South. I will gladly replace any bees I ship in which bee paralysis breaks out.

QUALITY AND SATISFACTION

Each and every queen I send out, if it is one or five thousand, is guaranteed to give absolute satisfaction to purchaser's own satisfaction; otherwise advise me and I will gladly send more to take their place. You run no risk; a record of over a quarter of a century of fair and honest dealings. You get your money's worth as nearly as possible, plus a very small profit, and my price is fixed to a very low profit.

All queens select. If they do not prove up pleasing to the eye, they are not shipped. I do not price a select and ship an untested. I give the greatest care to produce the finest queens possible.

PRICES ON QUEENS AND PACKAGES

	1	6	12	100
Select untested	$ .75	$4.25	$ 8.00	$60.00
Tested	$1.00	$5.70	$10.80	$85.00

Packages

1-lb. package, with queen (full weight), 1 to 12, $2.35 each; 12 or more, $2.30.
2-lb. package, with queen, 1 to 12, $3.85; 12 or more, $3.80.

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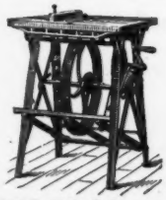

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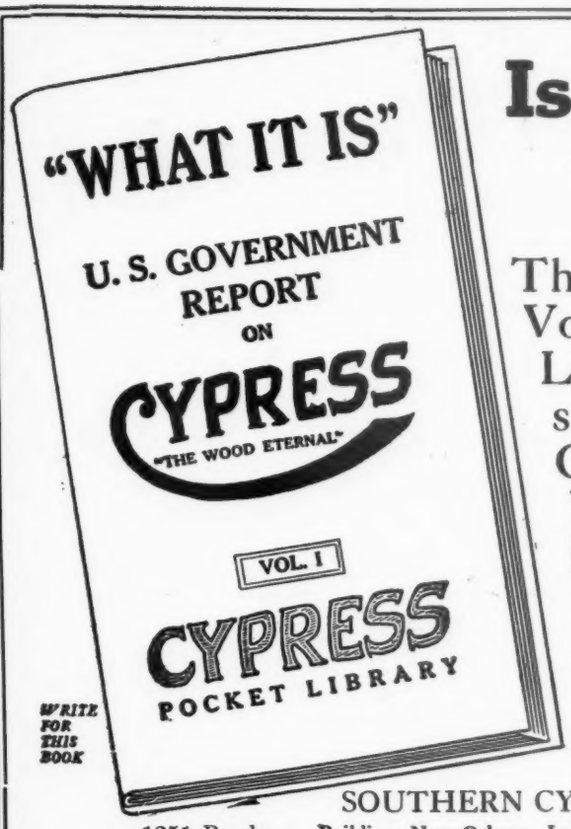

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